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THE PREHISTORIC CULTURES OF AUSTRALIA

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IN a valuable summary of current opinions on the antiquity of man in Australia, the late D. J. Mahony[2] dealt with the problem chiefly as a geologist and physical anthropologist; my approach to the question is from the historical and cultural points of view.

THE MATERIALISTS

In 1878 Smyth[3] stated there was no way of ascertaining, by a morphological examination, whether any of our Australian implements were Palæolithic or Neolithic in age. In 1901 Spencer[4] stated that both Palæolithic and Neolithic implements were found together on camp-sites and were used contemporaneously by the aborigines throughout Australia, an opinion later extended[5] to include Eolithic (*sic.*); this forms one of the basic concepts with which the study of Australian implements began. The explanation given was that "The nature of the implement, whether it be ground, chipped or flaked, depends primarily on the nature of the stone available in any particular district. There is no such thing in Australia as distinct stages of culture or time periods corresponding to the terms eolithic, palæolithic or neolithic."[6]

[1] Read at Section F, Australian and New Zealand Association for the Advancement of Science, Perth, 1947. Published by permission of the Trustees of the Australian Museum.

[2] *Memoir, National Museum of Victoria*, XIII, 1943.

[3] *The Aborigines of Victoria*, I, p. 360.

[4] *Guide to Ethnological Collections, National Museum of Victoria*, 1st ed., pp. 78-79.

[5] W. B. Spencer and F. J. Gillen, *The Northern Tribes of Central Australia*, 1904, p. 635; *The Arunta*, Vol. II, pp. 536-537; W. B. Spencer, *Guide to Ethnological Collections, National Museum of Victoria*, 2nd ed., 1915, 3rd ed., 1922; *Wanderings in Wild Australia*, 1928, Vol. II, p. 506; A. S. Kenyon and D. J. Mahony, *Guide to the Stone Implements of the Australian Aborigines, National Museum of Victoria*, 1914, p. 13.

[6] Spencer, 1922, *op. cit.*, p. 74; A. S. Kenyon and D. L. Stirling, *Proceedings of the Royal Society of Victoria*, New Series, Vol. XIII, pp. 191-200; Kenyon and Mahony, 1914, *op. cit.*; A. S. Kenyon, *Victorian Naturalist*, Vol. XLIII, 1927, p. 280.

Upon this independent and local evolutionary basis these writers attempted to explain the variations that exist among Australian implements as a whole. Kenyon and Mahony,[7] for example, claimed that the occurrence of microliths was due to the scarcity and consequent high value of suitable stone in any locality ; this explanation they maintained despite the fact that microliths are made from a wide variety of stone and not a few selected kinds, and they occur in enormous numbers where materials are abundant. In regard to axes they stated that " Attempts have been made to group the ungrooved axes into a number of classes generally dependent upon shape, but with little justification. The shapes are more or less dependent on the stone used and its adaptability to the crude means of shaping available." Current research[8] has shown that the trimming and pecking techniques, allied with culture diffusion and tradition, are the decisive factors in the development of Australian axe-types among which local variations of basic forms have been developed in restricted areas on the continent. The history of Australian axe types is not a local problem, but is an integral part of the history of such implements in the Oceanic region generally. The above authors even attributed the absence of edge-ground axes to the non-occurrence of a particular stone in a district, and their absence in Tasmania to the non-occurrence of the typical diabase of Australian axes ; this claim is untenable because we know that there are other kinds of stone in Tasmania—basalt, granite, dolerite, quartzite—suitable for making axes, and axes were made of many materials other than diabase in Australia. The more probable explanation is that the Tasmanians were isolated from Australia prior to the introduction of the edge-grinding technique on the continent. Finally, in conformity with the " material " interpretation, Kenyon[9] claimed that Australian stone implements developed locally and were not introduced from an outside people or source. This claim is partly true, but many relationships exist between Australian and Oceanic lithic cultures.[10] Among other collectors who supported the above approach was Towle,[11] who asserted that the difference between the form of flaked implements in eastern New South Wales and those of far western New South Wales was due to the kinds of stone used.

Materials such as chert jasper, quartzite, chalcedony, silicified wood, porphyry, and similar siliceous rocks were used throughout Australia, but despite this variation of material the specialized types of knapped implements are always consistent in shape. The principal effect of the material used is that beautiful trimming can be done on fine-textured stones, but coarse materials do not permit of fine retouch and

[7] 1914, *op. cit.*, p. 6.

[8] F. D. McCarthy, E. Bramell and H. V. V. Noone, *Memoir, Australian Museum, IX. The Stone Implements of Australia*, 1946, pp. 44-57, figs 250-299.

[9] *Victorian Naturalist*, Vol. XLIII, 1927, p. 285.

[10] F. D. McCarthy, *Australian Journal of Science*, Vol. I, 1938, pp. 39-40 ; *Mankind*, Vol. II, 1940, pp. 241-269, 294-320 ; *Proceedings of the Third Congress of Prehistorians of the Far East, Singapore*, 1938 (1940), pp. 30-50, pls. I-XI.

[11] C. C. Towle, *Journal and Proceedings of the Royal Society of New South Wales*, Vol. LXVIII, pp. 117-143, Pls. I-VI.

they are poorly finished; thus material affects the form of knapped implements within cultural limitations only. There are many other points in regard to material that space will not permit me to discuss, but obviously, the hypothesis that material controls the form of all our implements cannot solve the problems of Australian prehistory, and it must now give way to the broader cultural interpretation in which techniques are an important factor.

The Tableland Eoliths

Howchin[12] described a series of large implements, which he found on the gibber plateau of Central Australia, as eoliths, basing his claim chiefly upon their typology and situation. Wood-Jones and Campbell,[13] after visiting the sites, considered that these " eoliths " could have been produced by the action of local natural forces such as heat, cold, sand-blow, concussion and other factors. Tindale[14] analysed the flake-scars on one specimen and concluded that it was not of human workmanship. Fürer-Haimendorff[15] and others abroad, however, accept these pieces as authentic implements made by man, although they have not examined them, nor the site. There the matter now rests, and Australia's claim to the possession of pre-palæolithic man must be rejected until conclusive evidence is revealed.

The Culture Chronologists

Archæological work, which had as its aim the establishment of the chronology of Australian implements on a cultural basis, was begun by David and Etheridge[16] and Etheridge[17] by the excavation of rock-shelters at North Harbour, Port Jackson and at Deewhy Lagoon, in which edge-ground axes and knives (*Bulga*-type), and a fish-hook file, were found. It was not until 1930 that a stratified site was described,[18] when Hale and Tindale gave an account of their excavation of a very large rock-shelter at Devon Downs on the lower Murray River, and also of an occupational deposit on a raised terrace, further down the river and on the opposite shore, at Tartanga. The results are important not so much for the quantity of implements obtained but in their unquestionable stratification in well-defined layers.

I examined these implements in 1946 and noted the following features. The only specialized knapped implement yielded by the Tartanga beds was the *Burren* adze-slug from deposits B, C and E. On the surfaces of deposits G and H two worn and discarded *Tula* adze-slugs and a *Pirri* point, displaying the typical grey patination

[12] *Transactions of the Royal Society of South Australia*, Vol. XLV, pp. 206-230, pls. XI-XXI, 1921; *Records of the South Australian Museum*, Vol. V, 1933, pp. 1-11.

[13] *Journal of the Royal Anthropological Institute of Great Britain and Ireland*, Vol. LV, 1925, pp. 115-122, pls. XVII-XX.

[14] *Records of the South Australian Museum*, Vol. IV, 1932, pp. 483-488, figs. 1-4.

[15] *Anthropos*, Band XXXI, pp. 1-36, 433-455, figs. 1-36.

[16] *Records of the Geological Survey of New South Wales*, Vol. I, 1889, pp. 140-144, pls. XV-XXII.

[17] *Records of the Australian Museum*, Vol. I, 1891, pp. 171-174.

[18] *Records of the South Australian Museum*, Vol. V, 1930, pp. 63-172, figs. 1-250.

of the implements from the actual layers, were found—should these *Tula* and *Pirri* have weathered out of the deposit, it is possible that some of the Tartanga layers are contemporaneous with the pre-Pirrian or Pirrian cultures in the Devon Downs cave, instead of being earlier than the latter. Nuclei from Tartanga layers C and E exhibit alternate platform knapping, and some of the flake implements are of microlithic size. One nucleus from layer C is a flat-based prismatic type with two opposite platforms.

Figure 1.—(1) Lapstone Creek. (2) Botany Bay. (3) Bathurst. (4) Singleton. (5) Darling River. (6) Murray River. (7) Altona and Point Cook on the western shore of Port Phillip. (8) Darling Downs. (9) Devon Downs and Tartanga on lower Murray River. (10) Fulham and Kongarati on the eastern shore of St. Vincent's Gulf. (11) Yorke Peninsula. (12) Kangaroo Island. (13) Coorong and Woakwine Ranges. (14) Wardaman Tribe. (15) Kimberleys.

The Devon Downs cave yielded four cultures embracing a fairly wide number of specialized knapped implements. None of the latter were found in the pre-Pirrian layers xi to xii, the true nature of which is as yet unknown. The Pirrian layers viii to x produced the *Burren* adze-slug from viii and *Pirri* points and microlithic-sized scrapers throughout the culture. The true *Tula* adze-slug is unrepresented in the Pirrian culture. Both *Burren*[19] and *Tula* adze-slugs were present in the Mudukian layers v to vii, together with discoidal and semi-discoidal microlithic segments. In the Murundian layers, the *Burren* adze-slug was found in layers ii and iv, an *Elouera*-like adze-flake and two bipolar blades in layer iv. The later Murundian bore no specialized flake implements and the authors considered it to be the existing culture of the local aborigines at the time of white settlement.

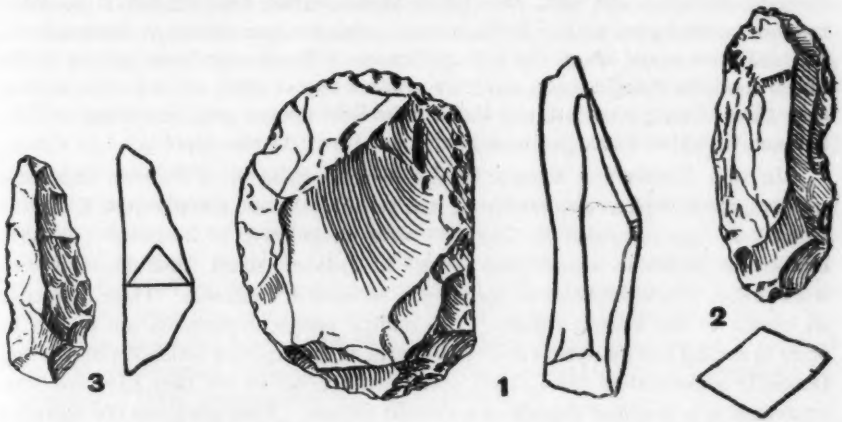


Figure 2.—(1) On the left is a *Tula* adze-flake showing typical semi-discoidal shape. On the right is a dorsal outline view of a *Tula* adze-slug with the working edge on left and the striking-platform on right. (2) Dorsal view of a *Tula* adze-slug with working edge on left, and transverse section below. (3) *Burren* adze-slug: dorsal view on left showing keel, lateral view on right showing transverse section.

Thus we have at these two sites a comparatively wide range of specialized knapped implements, which, apart from the *Pirri* point, are distributed somewhat erratically through the various cultures. The *Burren* adze-slug occurs in Tartangan layers B, C and E, and in Devon Downs layers viii (Pirrian), vi and vii (Mudukian) and iv (Murundian); it was in use, therefore, throughout the whole period of time from Tartangan to Murundian. It is found on surface sites on the Yorke Peninsula and throughout northern and eastern South Australia from Ooldea to the Murray

[19] Those described by Hale and Tindale are now known as the *Burren* adze-slug (McCarthy, Bramell and Noone, *op. cit.*, 1946, p. 30, figs. 104-106, 325).

River, and throughout western New South Wales. It occurs also in Tasmania. The *Tula* adze-slug occurs in vii (Mudukian) and iv (Murundian); it is also widespread on surface sites in the interior of South and Central Australia and western New South Wales, where it is more abundant than the *Burren* type. A single *Elouera* adze-flake is present in iv (Murundian); it occurs on the above surface sites in very small numbers not as a dominant specialized type but as an occasional flake type. There are no *Bondi* points in the Pirrian layers, but in the range of the *Pirri* are unilateral trimmed *Adelaide* points of a kind usually associated with the *Pirri*. The few microlithic discoidal and semi-circular segments found in the Pirrian and Mudukian layers indicate that the geometrical microliths had not developed to any degree at this stage, and their occurrence in such immense numbers on the Coorong, Victorian and some New South Wales surface sites has yet to be fitted into our chronological scale. Perhaps more extensive excavations at Tartanga and Devon Downs would reveal the full significance of the spasmodic occurrence of the above specialized implements, ascertain whether any of them occur in layers other than those already recorded, and throw more light upon a possible overlap in time between the upper Tartangan layers and lower Devon Downs deposits.

In 1931 Tindale and Maegraith[20] described an industry of *Sumatra* and semi-uniface pebble implements, *horsehoofs*, and *karta* blocks and coroids from Kangaroo Island. It was correlated by Tindale[21] with an industry of *horsehoof* and *karta* implements found on an old land surface at Fulham, South Australia, and with semi-uniface pebble implements, *horsehoofs*, and *karta* in Tasmania. These industries all belong to the Kartan culture. The uniface pebble implements are known to occur in coastal and hinterland areas of Victoria, in eastern New South Wales, Darling Downs in south-eastern Queensland, and Tasmania, but as yet they have not been excavated in a stratified deposit as a defined culture. They are generally regarded as the oldest of all known Australian cultures, but in some areas the types survived till the most recent times. Thus, on the coast of New South Wales the uniface pebble axe-blanks of the Eloueran culture are identical with the older Kartan implements.[22] The *horsehoof* nuclei also occur throughout western New South Wales, Queensland and Central Australia with rich Pirrian, Mudukian and Murundian flake and blade industries, and in this vast region they are obviously carefully prepared cores of good quality flaking materials such as quartzite and chert; the *horsehoofs* in the Kartan culture, however, are made of stone frequently unsuitable for knapping purposes, and they appear to have been used chiefly as choppers; they also occur occasionally in Victoria and eastern New South Wales.

[20] *Records of the South Australian Museum*, Vol. IV, pp. 275-289, figs. 1-11; a detailed description of the uniface pebble implements, *horsehoofs*, *karta*, *arapia*, and other large implements from Kangaroo Island and South Australia has been given by H. M. Cooper in *Records South Australian Museum*, Vol. VII, 1943, pp. 343-370, figs. 1-96.

[21] *Records of the South Australian Museum*, Vol. VI, 1937, pp. 39-60, figs. 1-16.

[22] F. D. McCarthy, *Records of Australian Museum*, Vol. XXII, 1948, pp. 1-34, figs. 1-131.

A further excavation done in South Australia at Kongarati by Tindale and Mountford[23] yielded a Murundian culture consisting of a small number of quartz implements with no specialized types, wooden points, bone awls, hammerstones, a female skeleton wrapped in a skin-cloak, fire-sticks and tongs, part of a spear, and fragments of twine and netting.

A rock-shelter excavated by the Anthropological Society of New South Wales at Lake Burrill[23a] in 1931 yielded Eloueran culture material.

Davidson's field work[24] indicated a paucity of scraper industries in north-western Australia. He described the use of the *Tula* semi-discoidal adze-flake, and of *Pirrioid* adze-points by modern natives, but found little evidence of stratification in the shallow floors of Wardaman rock-shelters that he excavated. He suggested the following chronology in the area: the uniface *Pirrioid* adze-point preceded the *Leilira* blade spear-head and knife, and the Kimberley biface spear points, with plain or dentated edges, in this order. His figures 8 to 11 suggest an unbroken period of use for the uniface and biface points at some stage during which period the *Leilira*-blade came into use. He was not able to give any association between these points and the *Tula* adze-flake, although the latter would appear from his remarks to be correlated with the earlier *Pirrioid* points.

In this paper Davidson drew attention to the need for the carrying out of typological surveys of surface implements in the whole of Western and northern Australia so as to establish the distribution of specialized implements; he also stressed the need for the carrying out of an extensive programme of excavations to throw light upon the puzzling problems of the origins—indigenous or foreign—of Australian implement types and fashioning techniques, and to enable us to establish the true relationship between Australian industries and cultures throughout the continent. These comments remain pertinent to-day.

The excavation of a rock-shelter on Lapstone Creek, Emu Plains, in 1936[25] yielded two cultures, the Bondaian and Eloueran. The Bondaian consisted of the *Bondi* point, *Elouera* adze-flake, bipolar flake and blade trimmer as the specialized knapped implements, but no large implements were present; evidence from other rock-shelters indicates that raw ochre drawings, paintings and stencils are associated with this culture. The Eloueran consisted of abundant *Elouera* adze-flakes and bipolar flake and blade trimmers as the specialized knapped types, with one *Worimi* cleaver; edge-ground axe-heads of the uniface pebble *Windang*-type, pebble and biface coroid types, and edge-ground *Bulga*-knives. With this culture are allied outline rock engravings, stone cairns, axe-grinding grooves, fish-hooks and files, and the paintings, stencils and raw ochre drawings inherited from the Bondaian

[23] *Records of South Australian Museum*, Vol. V, 1936, pp. 487-502, figs. 1-6.

[23a] W. W. Thorpe, *Mankind*, Vol. I, pp. 53-55, 1931, 78-79, 1932, figs. 1-13; F. D. McCarthy, *Records of the Australian Museum*, Vol. XXI, 1943, pp. 150-151.

[24] *Journal of Royal Anthropological Institute of Great Britain and Ireland*, Vol. LXV, 1935, pp. 145-184, pls. VIII-X.

[25] McCarthy, 1948, *op. cit.*

culture. The same kinds of nuclei and knapping techniques, and the use-polished working edge, are common to both cultures. The occupants of the site during the Eloueran period abandoned the *Bondi* point, used larger numbers of *Elouera* adze-flakes, knives, and bipolar flake and blade trimmers, and acquired in some way the edge-grinding technique.

Established Australian Cultures

Tindale[26] described an exhibit in the South Australian Museum set up to demonstrate the basic cultures of Australia. He postulated that Tartangan man was a continental-Tasmanoid type who existed immediately prior to the formation of the post-Glacial 12 to 20 feet marine Woakwine terrace, presumably about 4,000 years ago, in south-eastern South Australia. He also linked the Talgai, Cohuna, Nacurrie and other skulls with the Southern or oldest type of Australian aboriginal. Both these types he considered to be of middle or late Pleistocene antiquity, but he has not yet published the full data to substantiate these claims. He proposed the following sequence of South Australian cultures:

Gambieran: Flint biface and uniface implements.

Kartan: Uniface pebbles, *horsehoofs* and *karta* associated with an old land surface covered by post-Glacial marine sands and a recent lake bed at Fulham.

Tartangan: Flake and blade implements and bone points correlated with a fauna which includes a kangaroo with larger teeth than existing species, and with an extinct species of mussel.

Pre-Pirrian: Scant bone and flake industry, the ranges of which are not well known.

Pirrian: A point culture associated with a fauna which includes the locally extinct Tasmanian Devil and living forms, and a wetter climate than at present. Also bone points.

Mudukian: Small flake and blade implements and bone points associated with the *Muduk* bone point, and with narrow sharpening grooves on the wall of the rock-shelter.

Murundian: Small flake and blade implements, edge-ground axes, wooden fishing-toggles, associated with outline rock engravings. Bone implements rare.

In this chronology the order of the Gambieran, Kartan and Tartangan is based on typology chiefly and has yet to be established in a stratified deposit.

In regard to the antiquity of the Bondaian and Eloueran cultures Browne[27] stated that the Shea's Creek (Botany, New South Wales) find by Etheridge, David and Grimshaw[28] of dugong bones, tree stumps, and edge-ground axe-heads indicates

[26] *Australian Journal of Science*, Vol. III, 1941, pp. 144-147.

[27] *Proceedings of the Linnean Society of New South Wales*, Vol. LXX, 1946, pp. x-xxiv.

[28] *Journal and Proceedings, Royal Society of New South Wales*, Vol. XXX, 1896, pp. 158-185, pls. VIII-XI.

human occupation before the Pleistocene period quite came to an end about 9,000 years ago. According to this statement, the Bondaian culture is late Pleistocene and the Eloueran culture is Recent in age. Keble[29] estimated the age of the Bushfield (Victoria) axe to be about 6,000 years.

The limited number of cultures so far established are all in South Australia and New South Wales. The Gambieran, limited to south-eastern South Australia, Kartan, Bondaian and Eloueran are all coastal and tableland cultures forming a peripheral south-eastern group upon which the inland cultures—Tartangan, pre-Pirrian, Pirrian, Mudukian and Murundian—have impinged in their southward movement through the continent. Which of them are contemporaneous in age is yet to be established and the evidence concerning this problem is too scanty and uncertain to merit a detailed discussion here. Keble[30] estimated that the Tartangan deposits are probably early Recent in age and the Devon Downs cultures late Recent. In this paper Keble also stated that, according to available geological and climatic evidence, the Point Cook and Altona middens in Victoria, on which Kartan, Bondaian and Eloueran implements have been collected, were first occupied about 3,000 years ago in the post-Glacial or Recent period and belong to the Murundian phase; he admitted the possibility of an earlier occupation.

The Typologists

Descriptions of surface industries by most of the earlier writers are too incomplete to use in comparative studies. Horne[31] defined four areas of distribution, namely (1) Brisbane to Cape Otway, Victoria; (2) eastern inland district from the Queensland border to Lakes Eyre and Torrens; (3) area west and north of Lake Eyre; (4) Tasmania. These are known to possess no real significance in the light of present knowledge, and data available is much too incomplete for charting the continental distribution of our cultures.

My analysis of surface camp-site collections in New South Wales, begun in 1943,[32] has shown that the Bondaian and Eloueran cultures prevail in eastern New South Wales, interspersed with the Kartan culture. Along the coast north of Newcastle the workshops yield large implements like the *Worimi* cleaver and uniface pebbles in abundance. These eastern cultures mingle with the western cultures on the tablelands, or west of them, but the precise line of demarcation has yet to be defined. Westward to the Darling River the Mudukian-Murundian cultures prevail, and west of this river, generally speaking, these cultures and the Pirrian occur intermixed on many sites but partly separated on others; thus the older Pirrian culture appears to have a more limited distribution than the Mudukian and Murundian.

[29] *Memoir National Museum of Victoria*, Vol. XV, 1947, pp. 27-81, figs. 1-13.

[30] *Op. cit.*

[31] *Victorian Naturalist*, Vol. XXXIX, 1921, pp. 63-65.

[32] *Records of the Australian Museum*, Vol. XXI, pp. 127-153, figs. 1-103, 1943; pp. 164-166, pl. XII, 1943; pp. 199-209, figs. 1-48, 1943; pp. 210-230, figs. 1-135, 1943; pp. 411-430, figs. 1-22, pls. XXXVI-XXXIX, 1947.

On these far western sites the comparative abundance of dentated blades and geometrical microliths indicates a subsequent and richer phase of the Mudukian culture than that represented in the Devon Downs cave.

Noone[33] described the scanty collections in existence of surface implements from Western Australia, and most of them appear to belong to the Pirrian, Mudukian and Murundian groups of cultures, with the exception of the Kimberley biface points. Campbell and Noone[34] described Bondaian culture material from surface sites in the Woakwine Ranges, south-eastern South Australia, where the rich development of geometrical microliths is similar to that at Singleton, Hunter River, New South Wales. The *Woakwine point*[35] occurs as a specialized variety of the *Bondi* point on Bondaian sites, particularly where microliths are abundant, throughout Victoria and the coast of New South Wales. Campbell and Walsh[36] described a collection of Bondaian and other implements, including microliths, from sites on the Yorke Peninsula of South Australia.

Australo-Tasmanian Relationships

Spencer[37] drew attention to the similarity between some Tasmanian and Victorian (from Portland) knapped implements. His claim was supported by Kenyon and Mahony,[38] and by Thorpe,[39] who used as his comparison some crudely trimmed blocks and scrapers from the Lake Burrill rock-shelter which are now known to belong to the Eloueran culture.[40] Howchin[41] suggested that certain of his so-called Central Australian Tableland specimens were the remains of a Tasmanian occupation. Davidson[42] left open the question of a relationship because he thought comparisons already made were not very sound, and suggested that an indigenous origin for Tasmanian flake work should be considered. Tindale,[43] following Balfour,[44] distinguished an older and newer series of Tasmanian flake work which he correlated with the Pirrian, Mudukian and Murundian periods in Australia; further, he thought that both were preceded by the Kartan uniface pebble and *horsehoof* implements in Tasmania. A wide range of uniface and semi-uniface pebble implements, identical typologically with Australian varieties, exist in Tasmanian collections.

[33] *Records South Australian Museum*, Vol. VII, 1943, pp. 271-280, figs. 1-31.

[34] *Records of South Australian Museum*, Vol. VII, 1943, pp. 371-396, figs. 1-157.

[35] F. D. McCarthy, E. Bramell and H. V. V. Noone, 1946, *op. cit.*, p. 36, figs. 168-173.

[36] *Mankind*, Vol. III, 1947, pp. 334-340.

[37] 1901, *op. cit.*; 1915, *op. cit.*; 1922, *op. cit.*, p. 74.

[38] 1914, *op. cit.*

[39] *Mankind*, Vol. II, pp. 53-55, 1931; pp. 78-79, 1932, figs. 1-13.

[40] McCarthy, 1948, *op. cit.*, p. 30.

[41] 1921, *op. cit.*

[42] 1935, *op. cit.*, p. 166.

[43] *Records of South Australian Museum*, Vol. VI, 1937, pp. 55-58.

[44] *Report of Australasian Association for Advancement of Science*, Hobart, 1928, pp. 314-333.

Campbell and Noone,[45] referring to their Woakwine Range material, said that "The large proportion of scraper tools in various forms, especially the nosed and concave varieties, the knapping techniques which favoured a well-sloped, roomy striking-platform, giving a high platform inner-angle, the frequency of a salient bulb, the mediocre class of blade technique (except for the microliths), the long faceted form of trimming and the habit at times of using inverse trimming, are all features that the Woakwine industry has in common with that of the extinct Tasmanians. In view of the contention sometimes emphasized that the stone industry of the near Australian mainland shows no affinities with that of Tasmania, the above facts have a special significance." It should be borne in mind that every one of the above traits are characteristic of Australian short-blade industries but many of the latter include the faceted-butt technique, geometrical microliths, and two of them points, none of which occur in Tasmania. In addition, contrary to the above statement, there was a well developed blade technique in Tasmania, as shown by the high proportion of short to long blade implements in Tasmanian collections. Additions to the above similarities between Australian and Tasmanian industries are the semi-discoidal and discoidal scrapers, end scrapers on blades, high-crowned, carinate and keeled scrapers, *Worimi* cleavers, and the *Burren* adze-flake.

It has been shown[46] that the concave and nosed scrapers occur plentifully in and form an integral part of all New South Wales flake and blade industries, as they do in the Woakwine Range industry of South Australia; in my opinion their occurrence in any industry has a functional basis. The concave scraper was obviously used for shaping the round-shafted weapons of the Tasmanians and these and other objects of the Australians, and its presence in large numbers in any industry cannot be claimed to be due solely to an historical relationship. In regard to the nosed projection there is no evidence of a grooving technique on Tasmanian wooden weapons that would require the production of such immense numbers of them on the knapped blocks and flakes, so that some other explanation of their probable use is necessary; my suggestion is that the nosed projection is really a knife, possibly hafted, a purpose for which it is admirably suited.

The two most critical implements indicating Australo-Tasmanian relationships are the semi-discoidal scraper of *Tula* adze-flake type, and the *Burren* adze-slug. Both are common in Australian inland and Tasmanian industries and the *Tula* is still used in Australia. Now in all industries in which it occurs this semi-discoidal scraper is a specialized form from which other scraper varieties derive; this relationship is particularly true among the large and medium sized knapped implements in Tasmania. In both Australia and Tasmania the ideal type of semi-discoid is identical in general form and range, and further, the heavily step-chipped edges of the Tasmanian semi-discoids and slugs indicate strongly that, contrary to the reports of

[45] 1943, *op. cit.*, p. 384.

[46] McCarthy, 1943, *op. cit.*; F. D. McCarthy and Davidson, *Records of Australian Museum*, Vol. XXI, 1943, pp. 210-230, figs. 1-135; F. D. McCarthy, E. Bramell and H. V. V. Noone, 1946, *op. cit.*

early writers, they were used as hafted adzes as in Australia. There is one important difference in the method of working the *Tula*. In Australia one method is to project the distal end of the prepared *Tula* from the gum-cement and by use and retouch reduce it gradually in size until only the slug, on which the striking-platform is retained, remains, and this is discarded, but this type of adze-slug is not known in Tasmania. In the other method the mounted semi-discoidal adze-flake is worked inward from both lateral margins to a central ridged remnant which sometimes retains a narrow central portion of the striking-platform or this may be worn away; this remnant, known as the *Burren* adze-slug,[47] is also discarded although its rounded or pointed ends could serve as groovers. The *Burren* adze-slug type, although larger than the Australian slugs, is well represented in Tasmanian collections. A further point of interest is that the semi-discoidal flake or block was transformed into a fully trimmed discoid by the removal of the striking-platform in both inland Australian and in Tasmanian industries.

This correlation of flake form and working technique is perhaps the most important comparison that can be made between Tasmanian and Australian industries, which, added to the other similarities mentioned above, provide a sound case for a cultural and historical relationship.

External Relationships

At the present time, owing to the scant data available from excavations and about surface distributions, we can only glimpse the ultimate historical relationships to be worked out between the cultures of Australia and other continents.

Fürer-Haimendorff[48] attempted to associate the stone cultures of Australia and Tasmania with the ethnological and linguistic cultures according to the *Kulturkreis* method. His conclusions are based upon inadequate data from literature, as he admitted, and most of them are now untenable. His conclusion that the Hoabinhien-Bacsonien cultures form one complex in south-east Asia, Indonesia and Australia is supported by my own examination of the material[49] and by Tindale's[50] comparison of Hoabinhien I and Kartan cultures. Available evidence[51] also supports his claim that a relationship exists between Australian grooved and round axes and those of Melanesia and Indonesia, and secondly, between the Toalian biface serrated point of the Celebes and the same type of point in the Kimberleys of north-western Australia.

Having examined collections in the museums of Java and the Malay Peninsula, I pointed out[52] that though the time was premature for a truly satisfactory comparison of Australian, Indonesian and south-east Asiatic stone implements and cultures,

[47] McCarthy, Bramell and Noone, 1946, *op. cit.*, p. 30, figs. 104-106, 325.
[48] 1936, *op. cit.*
[49] 1938, *op. cit.*; 1940, *op. cit.*
[50] 1937, *op. cit.*
[51] McCarthy, 1938, *op. cit.*; 1940, *op. cit.*
[52] 1940, *op. cit.*

it was possible to demonstrate the great importance of diffusion in the development of Australian types and cultures, and to establish a chronology for the major techniques. The relationships of hand-axes, points, uniface pebble implements, axe and adze shaping techniques, bone implements, tanged and perforated implements were discussed in these papers.

Horne[53] and Fürer-Haimendorff[54] have used European terminology for Australian implements and cultures but their case for a relationship rests purely upon typological similarities of single and not complexes of implements. Barnes[55] has shown that the short blade industries of Bathurst, Singleton and the south coast of New South Wales, all of which belong to Bondaian and Eloueran cultures, are produced by the same knapping techniques, and include the same kinds of nuclei, as were employed in certain mesolithic industries of India, England and Scotland. These traits, too, occur in upper Palæolithic cultures from the Aurignacian onwards in Europe and elsewhere. Noone[56] considers that the microliths, Kimberley biface points, *horsehoofs* and cylindro-conicals, among other traits, are indigenous to Australia. Casey[57] believes that the geometrical microliths form the most ancient culture in Australia, brought to the continent by the original aborigines. Vignard[58] is of the opinion that these implements are an extension of the Tardenoisian culture of the Mediterranean area, and that their age may mark the subsidence of the land bridge between Australia and Asia. The absolute similarity of these implements in shapes and sizes in Europe, Asia, Africa and Australia is, in my opinion, a conclusive argument in support of the contention that they belong to one culture which spread into the above regions from a common source, probably from the Mediterranean area in mesolithic times. The only indications of their provenance in Australia are a few segments in the Mudukian culture at Devon Downs, and their usual association with the *Bondi* point in the Bondaian cultures.

Problems for the Future

Many of the finds of skeletons, skulls and implements indicating antiquity for the Australian aborigines have been haphazard discoveries by untrained laymen. Both Casey[59] and Mahony[60] have pointed out that claims to antiquity based on single implements found or alleged to have been found in consolidated dunes, beneath lavas or tuffs of the Newer Volcanic period, in beds containing extinct animal bones,

[53] 1921, *op. cit.*

[54] 1936, *op. cit.*

[55] *Proceedings of Prehistoric Society*, Vol. XIII. 1947, pp. 101-113, Figs. 1-5.

[56] *Mankind*, Vol. III, pp. 136-139.

[57] *Proceedings of the Third Congress of Prehistorians of Far East, Singapore*, 1938 (1940), pp. 28-29.

[58] *Revue de l'Ecole de l'Anthropologie*, 1948.

[59] 1940, *op. cit.*

[60] 1943, *op. cit.*

associated with raised shorelines, or buried beneath alluvium, cannot be supported without other corroborative evidence.

The approach of modern students to Australian prehistory must be linked closely with the work of the geologist, an approach already developed by Tindale[61] and Keble.[62] The great difficulty in the past has been the lack of an adequate statement from the geologists on the occurrence and distribution of the Pleistocene and Recent deposits in Australia, a deficiency now remedied by Browne[63] and Cotton.[64] A perusal of these reviews suggests certain lines, necessitating widespread and careful field work, upon which can be based the search for early evidence of man and his implements in Australia. During the Pleistocene and Recent periods great changes took place in the physiography of the continent, many of which compelled the aborigines to abandon their old camp-sites and move to new ones. Our problem, therefore, is to trace the camp-sites and workshops in a chronological order, and to ascertain the ranges of implements and the nature of the specialized types in the various periods.

The location of these old camp-sites falls into a number of groups. The land bridges between Tasmania and Australia[65] and between Australia and New Guinea[66] are related to the various upward and downward movements of the land and sea that occurred during Pleistocene and Recent times, and which produced coastal terraces, low-lying coastal plains, filled-in embayments, tied islands, barrier beaches, enclosed lagoons, consolidated dunes, and raised beaches. It is in these places that we must search on a wider scale for early evidence of man in Australia. Already the Shea's Creek level has yielded edge-ground axes associated with dugong bones and tree stumps in central eastern New South Wales[67] at the end of the Pleistocene,[68] and the Fulham and Rocky Creek (Kangaroo Island) levels have yielded Kartan implements.[69] A promising field of inquiry along the east coast of Australia should be the post-Glacial marine terrace about 4,000 years old, and one site[69] forming part of this terrace should produce valuable evidence when excavated. Other terraces which exist on our coast[70] might yield valuable evidence regarding man and topographical changes, and contemporary lithic cultures might be found associated with the various terraces of our rivers, as at Singleton.[71]

[61] 1937, *op. cit.*; 1941, *op. cit.*

[62] 1947, *op. cit.*

[63] 1946, *op. cit.*

[64] *Journal and Proceedings of the Royal Society of New South Wales*, Vol. LXXX, 1947, pp. 41-76.

[65] R. A. Keble, *Memoir of National Museum of Victoria*, Vol. XIV, 1946, pp. 69-122, figs. 1-16.

[66] R. A. Keble, 1947, *op. cit.*

[67] Etheridge, David and Grimshaw, 1896, *op. cit.*

[68] N. B. Tindale and H. B. Maegraith, 1931, *op. cit.*; Tindale, 1937, *op. cit.*

[69] F. D. McCarthy, 1941, *op. cit.*

[70] W. H. Maze.

[71] F. D. McCarthy and F. A. Davidson, 1943, *op. cit.*

During the Pleistocene period, too, the Australian continent was traversed by great rivers, which produced the vast alluvial plains of the interior. It was covered in some parts by immense lakes,[72] such as Lake Nawait extending from Overland Corner on the Murray River into south-western New South Wales and the Mallee district of north-western Victoria, remnants of which are lakes Bonney and Victoria : another ancient lake was the Dieri, a great inland sea of early Pleistocene to Recent times, which embraced Lakes Eyre, Blanche, Gregory, Callabonna, Frome and Torrens. Is it possible, one may ask, to trace the terraces or courses of some of these ancient rivers, or the shorelines of these almost vanished lakes, by plotting the localities of camp-sites then in existence, and so establish a chronology from the earliest to the most recent occupation ? It is obvious that if man occupied any part of Australia during the Pleistocene period he must have left his implements as evidence of this habitation. Many camp-sites were occupied intermittently for a very long period of time, and the cultures are therefore mixed on them, so that they can only be interpreted by evidence from stratified sites elsewhere.

Another major problem is the investigation of extinct animal bone deposits, such as that at Wellington Caves in New South Wales, in the search for evidence of early man, firstly to ascertain how widespread and lengthy was his association with these creatures, and secondly, the kinds of stone implements he used during this period. It is generally believed that the extinct animals migrated from the interior of the continent as the climate became drier and arid conditions became dominant, and it would be very interesting to know just where man fits into the story, whether he participated in the extermination of the larger animals, and if he did, whether he was a Tasmanian or Australian aborigine, or both ?

Apart, however, from the general problem of the antiquity of man in Australia is the complementary one of establishing the historical relationships between our stone implement cultures, rock paintings and engravings, stone arrangements, and other traits throughout the continent. This task is one that can only be solved by the scientific excavation of occupational deposits in rock-shelters and on open sites, and funds are needed to finance a programme of such work in Tasmania and Australia, and ultimately in New Guinea.

FREDERICK D. MCCARTHY.

[72] Browne, 1946, *op. cit.*

THE INDUSTRIAL ARTS IN TANGA

By F. L. S. Bell

(Continued from *Oceania*, Vol. XIX, No. 3)

II. The Building of Houses

No account of the culture of any group of human beings can be regarded as adequate which fails to take into consideration the state of development of their architecture. Man's ability to erect structures which contribute to his social convenience and enhance his material comfort is a peculiarly human characteristic, almost as important in the evolution of culture as his ability to communicate ideas by speech. After all, the fact that man has been able to use tools to assist him to adjust himself to his environment is accepted as evidence of his unique position in the evolutionary scale and perhaps there is no other department of culture which demonstrates this fact so forcibly as the art and science of building. One rather enthusiastic writer[28] has claimed that " architecture is the matrix of civilization." Whilst not fully subscribing to such a belief, I do think that there has been a tendency to gloss over the achievements of primitive folk in the field of architecture and to take their seemingly simple building efforts for granted.

In this article, we shall endeavour to evaluate the art of building in Tanga and to show how very closely associated it is with the ritual life. Such matters as the concept of ownership as applied to buildings, the organization of the labour involved in their erection, the processes of manufacture and their general position in the economy of the people will be discussed. In this way, it is hoped to provide the reader with a more than superficial view of an element of the culture normally regarded as of little consequence.

The Variety of Structural Types

In response to a number of varying needs, the Tanga have developed a surprising variety of structural types. There are two principal kinds of habitation, three varieties of ritual structures and at least three different types of buildings which are used for purposes other than human habitation. In addition to these, there are several structures erected by these people, generally as the ritual occasion demands, which are of a special design and which may not be repeated except at very infrequent intervals. Unlike these latter structures, the eight types previously mentioned are part of the normal architectural scheme and are regarded as standard forms which are applicable by tradition to certain standard social situations.

[28] W. R. Lethaby, *Architecture*, Lon. (n.d.).

It is not proposed at this juncture to give a detailed description of each type of structure but merely to indicate its general form and specific function. However, before doing so I feel that the reader should be acquainted with the nature of the terrain and the general background against which the Tangan erects his buildings.

The island of Boieng is a crescent-shaped, coral outcrop about six miles long and a mile to two miles wide, lying almost due east and west. It is surrounded by a reef which recedes here and there, giving way to tall limestone cliffs. There is a safe anchorage for small schooners on the north-west side of the island. On the south-east side, the land ascends gradually from the reef level by a series of terraces to a height of 200 feet above sea-level. At this level a plateau extends for a mile or so to the north-west side, where it reaches a height of over 400 feet and then drops steeply to sea-level. It is on this plateau that the majority of people now live. The soil is a rich humus which encourages dense tropical growths, comprising trees of 25 feet girth and over 100 feet high, clumps of gigantic bamboo and numberless tropical vines and creepers. From the sea, the predominant impression given by the island is that of a mass of olive green foliage which is prevented from toppling into the water by a thin, intensely white band of coral sand.

To a people, equipped only with shell-bladed cutting tools, the taming of such an environment offered a somewhat formidable problem and it is not surprising that the Tanga, unlike most other Melanesian people, did not develop a " village " civilization. They still live in small settlements scattered all over the interior of the island.[24] The size of a settlement varies according to the size and matrimonial type of family occupying the area. In cases where a man has a plurality of wives, there is a corresponding increase in the number of houses and garden plots comprising the settlement, but it is rare for such a settlement to contain more than ten or a dozen individuals. A central settlement occupied by the acknowledged head of a local subsection of a clan, but containing no more houses or permanent dwellers than an ordinary settlement, is used as a gathering place for the subsection on all formal occasions. Such a settlement acts as a burial centre for the subsection and is distinguished from other settlements by its wide, flattened earth piazza or public square on which all dances and ceremonies are held. Here then, we have a society in which there are no villages and hardly any hamlets, the centre of social life being a small family settlement, much akin to the African *kraal*.

Within the settlement, the most important habitation is the men's house or *bi:a*.[25] This is a single story structure with a beaten earth floor, built on a rectangular plan and consisting of a single, undivided room. It rarely exceeds fifteen feet in width but the length of such a dwelling depends on the size of the household family group, the social importance of the head of the group and the size and importance of the clan to which he belongs. A *bi:a* is a guest house as well as a local men's house

[24] Since coming under Government control, many natives now live in small beach villages along the south-east coast of the island.

[25] See Plate IIIA.

and an important person belonging to a large clan always makes provision for the accommodation of a large number of visitors by building a long house. Some men's houses exceed sixty feet in length. The roof is of the ridged variety covered by a thatch made from the leaves of the sago palm. The height of the ridge pole does not exceed ten feet and that of the side walls not five feet. The roof extends on both sides in the form of wide, low eaves which in many cases reach the ground. The triangular upper part of the wall at each end of the ridged roof is not filled in, the roof extending over both front and back walls in the form of a gabled canopy. These walls, as do the side walls, consist of rods of bamboo lashed horizontally to a number of upright bamboo poles. In some *bi:a* the end walls consist of perpendicular wooden slabs resting on a slotted horizontal log. A narrow aperture, barely giving entrance to one person, is cut in the end wall to serve as a doorway. The framework of a majority of *bi:a* is of bamboo, although in the larger examples wooden uprights replace bamboo uprights. All rafters and cross members are of bamboo.

The *bi:a* provides the males of the settlement with permanent sleeping quarters and in the case of young bachelors and aged widowers with permanent living quarters. The married men of the settlement almost always eat with their families but the very young and the very old both eat and sleep in the *bi:a*. Women do not frequent a men's house. There does not appear to be any strict prohibition against their entering a *bi:a* but it is an accepted fact that women do not ordinarily enter a *bi:a*. I have seen little girls inside *bi:a* in the company of their fathers or grandfathers and I have also seen old women sitting just inside the doorway of a *bi:a* talking to an aged occupant, but I have never seen young girls inside a *bi:a* or even near one. In this society, then, the men's house may rightly be described as a club house where the affairs of the settlement and matters of local and clan interest are thrashed out and settled by the males of the community over a cigar and a bunch of areca.

The women of the settlement live in special houses called *ful-ung-kur*. These are not complementary in function to the men's houses nor are they as large or as well built as the *bi:a*. In each settlement there is only one *bi:a* but there may be three or four *ful-ung-kur* since each female spouse of the male members of a settlement is provided with a separate house. Not the least of the worries of a polygamist in this society is the provision of a separate house for each of his wives.

The standard dimensions of a *ful-ung-kur* are: width, ten feet; length, fifteen feet. It is an earth floor, single room, single story type of dwelling made entirely of bamboo and thatch. The walls are about five feet high and the ridged roof has a slightly sharper pitch than that of the *bi:a*. Inferior thatching material, consisting of woven coconut palm fronds laced to horizontal bamboo stretchers, covers the roof. There are no projecting eaves and there is but a single entrance to the house, cut in one of the end walls. The ridged roof overhangs this wall by about four feet, forming a high verandah-like covering. The gable beneath this projection is not filled in and so provides more than sufficient ventilation in a house largely devoted to cooking purposes. In order to avoid facing the prevailing winds, all dwellings are orientated in a north-easterly, south-westerly direction and although this means

that their side walls are subject to the full blast of the monsoonal rains, the tightly laced bamboo rods, of which these walls consist, are almost completely leak proof. A low bamboo platform raised but a few inches above the floor and running around the inner walls of the house acts as a seat during daylight hours and a bed-frame on which Pandanus leaf mattresses are laid at night.

Each *ful-ung-kur* in a settlement is occupied by a married woman, her female children, her unweaned male children and perhaps her widowed sister. During the first months of marriage, her husband generally sleeps in the *ful-ung-kur* with her but he dare not continue this practice beyond this period. If his wife fears to sleep alone in the house, he generally arranges for his mother to keep her company. For purposes of cohabitation, a husband normally visits his wife when the other occupants of the *ful-ung-kur* are asleep and after satisfying his sexual needs, he returns to the *bi:a* to sleep. There is always a fire burning inside each *ful-ung-kur* and it is over this that the early morning and mid-day meals are prepared. The principal meal of the day is prepared in an oven outside the *ful-ung-kur* but this meal, as well as the others, is often consumed inside the house. The mid-day siesta is taken inside the *ful-ung-kur* and when weather conditions are unfavourable to outdoor living, many household tasks such as basket making, the preparation of clothing, body decoration, the making of thatch *et cetera* are carried on inside the *ful-ung-kur*. Entrance to this type of dwelling is not restricted to the aforementioned people. Any friend or relative of either sex, who is not subject to ritual avoidance, may enter a *ful-ung-kur* and accept the hospitality of the occupants. In brief, then, the *ful-ung-kur* is the common meeting place of the members of the individual family group, the living quarters of the female members of the family and the nearest approach to a private dwelling place in a society where ninety per cent. of life is lived in public.

The urge to do things in public or, in other words, to recognize by ritual means the social importance of certain phenomena such as death, birth and the supernatural is indeed an urge to which the Tangan gives way when and wherever the opportunity occurs. Almost invariably we find that with the public celebration of such rites, a particular type of building is associated. Indeed, the finest buildings in Tanga are those devoted to ritual purposes.

The Tangan word for a house is "*fel*." It is rarely used by itself, being nearly always combined with another word to indicate the exact nature of the house, e.g. *fel 'n fitil* (house/for/harvest) ; *fel 'ng kaik* (house/connected with/the child). However, in referring to the beautifully constructed funeral house in which is conducted a long series of mortuary rites, the term used is simply *fel*. To the Tangan, such a structure represents "the house" in its purest form. It is, indeed, a fine example of Pacific Island architecture, as reference to Plate II, A, will reveal. In cross section, it is semi-elliptical. It stands about nine feet high and is almost as wide as it is high. Its length varies from fifty to one hundred and fifty feet. The whole structure is built around a central line of carved and painted ridge posts which support a series of connected ridge poles. A low wall of horizontal bamboo poles is then constructed

on both sides of the line of ridge posts and arched bamboo strips are lashed to this wall on one side, passed over the ridge pole and lashed to the opposite wall. Thousands of such strips are used in constructing a single *fel*. Upon these rafters, a thatch of sago palm leaves is laid and over the top of the thatch, an outer framework or trellis of split bamboo is carefully constructed. This latter framework is built up in a criss-cross, diamond pattern and extends over the entire roof from foundation to ridge pole. The whole building appears to be in perfect proportion and does not vary over its entire length either in height, in contour or in longitudinal shape. There are no loose ends or uneven pieces of framework left protruding from a building of this type. The greatest care is taken to produce as perfect a structure as possible and it should be manifest to even the most casual observer that a *fel* has an importance well beyond that of a mere group meeting house.

Its prime purpose is to afford the members of a clan or a local subsection of a clan an opportunity to express publicly their grief at the death of one of their members or even of a number of their members and at the same time to assert their solidarity as a kinship group. The house is an essential element in a series of integration rites and when these are concluded, the building is abandoned and never used for purely secular purposes.[26]

Although by no means as elaborate a structure as the *fel*, the *ful'n dafal* (" house/of/Dafal ") is a building which, functionally speaking, is closely linked to the funeral house. It is constructed much after the pattern of the *ful-ung-kur*, except that the ridged roof is pitched at a more acute angle and the bamboo walls are somewhat higher. The central ridge pole of the house is about fifteen feet from the ground whilst the walls are fully six feet high, producing a rather spacious structure when compared with the ordinary women's house. Around the inside a low bamboo seat runs and in the centre of the beaten earth floor stands the *ful 'ng mi*. This peculiar structure is made of closely bound bamboo rods and takes the form either of a high tower with two compartments, one above the other, or a rectangular combination of two small rooms on the same plane. Great care is taken to exclude all light from the *ful 'ng mi* by roofing the top with sago palm leaves and lining the walls with the leaves of the *mi* plant. The only furniture allowed the occupants of these small cages are sleeping mats of *mi*, bamboo pillows and coconut-shell water containers. Each compartment allows just enough room for its occupant to move about easily and to sleep fully extended. The cage is entered through a socketed trap-door which, when closed, renders the compartment absolutely light proof.

The term " *dafal* " connotes a child of either sex who is undergoing or who has undergone initiation rites of an age-grade character. The principal features of the rites are the close confinement of the initiate inside a light-proof house for a period of several months, the ceremonial release of the initiate and her or his presentation to the community as an individual of enhanced social position. In other words, the

[26] For a more detailed analysis of the function of the *fel*, see my " Death in Tanga," *Oceania*, Vol. VII, pp. 316-339.

rites are characterized by a period of "separation," a "marginal" period and a period of social "reintegration."[27]

The selection of the site for the house and the actual building of the house are matters of "high kinship policy." Many conferences are held between the various sections of the clan involved and the whole enterprise is conducted on a co-operative basis. The core of the ceremony is the *ful'n dafal*. Without the special house, there could be no rite and from the fact that great value is attached to the ceremony, it follows that the "house of Dafal" and the industrial techniques employed in its construction are of complementary importance in the eyes of the participants.

Another type of structure which has its origin in the ritual life of these people is the *ful'n ga:f*[28] or secret meeting house of members of the Sokapana society.[29] It is not an elaborate structure and there are not more than six such houses on the island. Like the *ful'n dafal*, the walls are high in comparison with other Tangan houses. They stand about eight feet above the ground, the first six feet consisting of closely packed vertical bamboo rods surmounted by a horizontal wall plate and the top two feet consisting of a trellis work of bamboo strips connected with another horizontal wall plate. The building is of the usual rectangular shape and has but a single entrance which can be closed by inserting a bamboo shutter which fits into slots left in the vertical poles forming the end wall of the building. There is no standard set of dimensions applicable to houses of this type but they average twenty-five feet in length and ten feet in width. The roof is a rather steeply pitched, ridged roof carrying a heavier than usual covering of thatch.

The primary purpose of the house is to act as a local headquarters for members of the Sokapana society and more particularly for the chief organizers of the society. Within it are kept the masks worn during a meeting of the society, together with the spears, clubs and bull-roarers belonging to members of the society. It is a regalia house where the insignia of the society are made and preserved. Although it is well built and the bamboo walls are proof against the prying eyes of the uninitiated, yet the fact that the walls immediately beneath the eaves consist only of trellis work would appear to make it unsuitable for storing secret paraphernalia. However, there is no fear of trespassing by unauthorized persons since not only the house but the ground within a hundred yards of it is forbidden territory to any but members of the society.

As with the *fel* and the *ful'n dafal*, the *ful'n ga:f* is an essential element in the celebration of the rites connected with the meeting of the ghost society and as such, is of more than superficial importance in this culture.

[27] For a complete account of the functional significance of *dafal*, see my "Dafal," *Journal of Polynesian Society*, Vol. XLV, pp. 83-98.

[28] The literal meaning of the term is "house/of/the *dracæna* shrub (*ga:f*)." The implied meaning of the term is "the house where special body decorations, consisting of yellow and red *dracæna* leaves used as ritual adornment by members of a secret society, are made and donned."

[29] See my "Sokapana: A Melanesian Secret Society," *J.R.A.I.*, Vol. LXV, pp. 311-341.

All of the aforementioned structures are of a residential character. They are designed and constructed in order to provide their makers either with shelter against the elements or protection against their enemies. In some cases, the drive behind their construction is ritual rather than utilitarian. However, they all have one purpose in common: they all contribute to the personal comfort, either physical or psychological, of the builder. In this respect, they are akin to the products of the garden, the domesticated pig and the plank canoe. All of these are intimately associated with the personal comfort of the Tangan and it is therefore not surprising to learn that for each of these he has devised a protective structure.

The *fel'n fitil* or "house/for/the harvest" is found in every household family settlement. It is built adjacent to the gardens and is of the normal rectangular, ridged roof design. Its distinguishing characteristic is its lack of any aperture whatever, except of course the entrance in one of the end walls which is closed by means of a tight-fitting, slotted bamboo shutter. It is fitted with benches to hold the stored food and leafy tendrils of a vine are suspended from the rafters as a specific against the depredations of the *fitfit* beetle. It varies in size according to the number of adult members of the households within the settlement, but is never very large. Although it provides a common storehouse for the products of up to half a dozen gardens, there is never any pooling of such products within a storehouse. Each adult member of the community has his or her own garden or garden plot and in a corresponding way, has his or her particular section of the storehouse. The natives are proud of these weather-proof, rat-proof and vermin-proof structures, and on visiting a settlement I was almost always invited to inspect the *fel'n fitil*. They are important elements in the economy of these people, since they enable them to build up valuable food reserves which provide them with basic foodstuffs during a period of months when ritual activity is at its highest and *ipso facto* the demand for food in large quantities is at its peak.

The unique position of the pig in Tangan society has been already discussed in detail,[30] and it has been shown that this animal receives almost as much attention as a member of the family. Symbolic of this special treatment is the *fel kum bo* or "house/belonging to/the pig," which is a feature of every household settlement. It is not a pig sty in the usual sense of an enclosure wherein pigs are kept, but is a specially built pig house in which the animal is trained to sleep and to which it learns to return on being called by its owner. It is constructed of bamboo and is erected just outside the high wall surrounding the family settlement. It stands no more than three feet high, is just about as broad, and is six feet long. I have never seen more than two pigs sheltering in a *fel kum bo* and more often than not each fully grown pig has its own *fel*. The existence of such structures in this society is but one more example of the way in which these people have used their technological skill to preserve a valued element of their culture. It is a simple but significant example of architectural adaptation in the economic field.

[30] See my "Place of Food in the Social Life of the Tanga," *Oceania*, Vol. XVIII, pp. 36-59.

Of all things made by the Tanga, the plank canoe is undoubtedly the most valuable. It is treated with much more care than any other single object of material culture, with the possible exception of the shell disk called *fat*, and, when not in use, is always kept in a special canoe house (*pal'n mon*). This is not an elaborate structure, consisting generally of a wide-eaved, ridge type, thatched roof supported by three central ridge posts and six wall posts on a rectangular plan. In some cases bamboo side walls are added, but more often these are lacking and the overhanging eaves are relied upon to keep out driving rain. The canoe is stored on its keel and preserved from contact with the ground by being placed on a low bench or on a couple of short logs. Simple as it is, the *pal'n mon* is always kept in good repair, its floor is swept clean and children and women keep away from it. Access is easy and functionally it is a well-designed structure and further exemplifies the uses to which these people put their skill as builders.

In addition to the structures outlined above and which are a common feature of the Tangan architectural landscape, there are several other buildings which can be regarded as special architectural responses to special social situations. For this reason alone they are of interest as practical examples of the aforementioned technological adaptability of the people.

In disposing of the dead, the corpse is laid in a shallow, bark-lined grave and after a few weeks it is exhumed and the skull and upper limb bones are cleaned and made the subject of special rites. In order to protect the body in its shallow grave, a " little house " (*fel lik*) is built over it.[31]

In like manner, when an important man loses a molar, a special house (*ful'n gnisa*) is erected, wherein the missing tooth, attached to a shell necklace, is ritually preserved. The body and parts of the body have a peculiar value in this society and great pains are taken to preserve and protect them. Although these people recognize that a person has a spiritual as well as a physical identity, they find it difficult to think of one without the other, hence the belief that the corpse or any separate part of the body is causally connected with its spiritual counterpart and is subject to injury by magical transference unless it is well protected. The existence of such a belief is at the base of quite a lot of Tangan building activity.

The most decorative and by far the most elaborate single structure which I saw on the island was a building having the appearance of a huge bamboo cylinder built about a tall tree. The name given to this structure is *long sit*. It was twenty feet in diameter and approximately sixteen feet high. Inside the cylinder stood a large inverted bamboo cone, the upper sides of which projected above and beyond the top of the cylinder walls. The cone was filled with hundreds of vegetable tubers, fruits and nuts and the outer walls of the cylinder were lined with thousands of coconuts. From each of the projecting ribs of the inner cone hung a cooked pig and to the end of each rib a creeper carrying leaf and feather decorations was attached. These

[31] See Plate III, B. Prior to coming under government control, the corpse was always buried inside the men's house. Objection was taken to this practice by the District Officer and as a compromise, the corpse is now buried just outside the *bia* and a *fel lik* is built over the grave.

streamers were caught up to a single central point on the top of the tree around which the structure was built. Weeks of work by scores of men went into the construction of this huge food container and yet it was dismantled within an hour and its contents distributed during a meeting of the local ghost society. It was built for the sole purpose of displaying the *tonsu'n kinit* (" everything/for/the ghosts ") and as soon as it had achieved that purpose all evidence of its existence was carefully removed. The tree and every scrap of bamboo in the building were pulled down and burnt. The very ground on which it once stood was carefully swept with leaf brooms, so that not the slightest trace of it remained when the meeting of the secret society concluded and the women and uninitiated men returned to the settlement. As a piece of architecture, it was a most ingenious structural composition, admirably designed in the best functional manner. The men who built it were proud of their creation, and the chieftain who supervised its construction added much lustre thereby to his already high reputation as a social leader.

As a final example of architectural virtuosity,[32] there is the large open-sided timber walled men's house called *bum'n fel*. This type of house is found only in a few of the largest household family settlements, and it is used chiefly as a " conference room " where the males of the clan settle arguments about outstanding pig debts and arrange co-operative undertakings. It also acts as a " grandstand," reserved for important men, during ritual proceedings on the adjoining " village square." The *bum n'fel* at Tenkuien is about forty feet long and twenty feet wide. The main structural members and framework of the house are wooden. The ridge posts and wall posts are over a foot in diameter, and the main ridge pole is a fairly heavy piece of timber close to fifty feet long and about six inches in diameter. The two end walls and the rear wall stand about eight feet high and are made of heavy, roughly hewn planks which are set in the ground for a foot of their height and lashed at their upper ends to wooden wall and end plates. On top of this three-sided timber stockade a huge ridged roof, thatched with woven coconut palm leaves, is built. This roof extends over the side of the house, which lacks a wall and forms a wide canopy. Beneath this canopy sit the elders of the community, protected at the rear by a wall which always faces the south, since it is from this direction that the prevailing winds come during that period of the year when the house is most frequently used. The two end walls are really only side shields attached to the long rear wall. They do not extend right across the ends of the house. The gables, on the other hand, are carried right up to the ridge pole, and completely close in both of the triangular ends of the dwelling.

The above survey of the architectural situation in Tanga should provide a careful reader with a clear picture of the building terrain, of the principal types of structure erected by these people and the purpose and function of each type. In this section of the article, emphasis has been placed on design and the various

[32] Other structures occasionally encountered in this society include children's play houses, food display benches (*borau*), fence-like apparatus for training children to walk (*arungarung*) and special houses containing relics, i.e. spears, clubs, wigs, etc. of the dead (*sodan*).

motivating forces which tend to mould design. In the section to follow we shall treat of the economic repercussions of house building and the technical processes employed.

Building Organization and Technology

Building materials and the techniques employed by the skilled craftsman in putting them to use form the subject of most studies of native architecture. In fact, there is a tendency to regard the discussion of *materials* and *processes* as the core of the study, whilst little or no attention is paid to the more important question of *labour* and its organization. In a primitive community, the answers to such questions as to when houses should be built or repaired, as to who makes the decision that they should be built, as to who is responsible for organizing the building of a house, as to the number of man-hours consumed in building activities, as to the comparative skill of individuals engaged in building, as to their attitude towards work, as to the division of labour according to age and sex and as to the payment of the workers are determined by rules, just as the answers to questions which concern types of material and ways of using them. There is a code of practice covering the use of labour as well as job performance.

In Tanga, all activities, both ritual and economic, are subordinated to those connected with the culture of the garden, and the building and repair of houses is no exception to this rule. From May to August, the principal gardening activity—harvesting—is performed by women. Men are released, to a large extent, from their duty to the garden during these four months of the year, and it is then that they attend to their building responsibilities. These weigh fairly heavily on the community at this time because it is the season when most rites are performed. As we have seen, the performance of rites almost inevitably means the erection of buildings. At the same time, the need for repairing and replacing dwellings and store-houses is a constant need in this society because of the rapid rate at which such buildings deteriorate in the tropics.

Responsibility for initiating a building enterprise and arranging a team of workers to carry out the enterprise is in all cases an individual responsibility which varies in complexity in accordance with the type of structure to be erected. For example, the responsibility for erecting a small women's house, a store-house or a pig's house devolves upon the head of the household family group. He decides when and how such structures are to be built and with the sole aid of his immediate family carries out the work himself. In the case of the men's house, that person who is socially the most active occupant of the house raises the question of the necessity of extending the house or rebuilding it at a gathering of his fellow occupants. The whole matter of the supply of materials and of convenience in relation to other social responsibilities is discussed. Having decided to proceed with the building or renovation of the *bi:a*, the leader is made responsible for organizing the whole settlement—men, women and children—into a building team. The adult males, all being members of the same clan, sometimes invite a number of their fellow clansmen in the neighbouring settlement to join the team, but more often than not the enterprise is of a purely local

character. In the same way, canoe houses are erected by the local members of the settlement where the clan leader, who initiated and paid for the building of the canoes, happens to live.

With regard to funeral houses, *dafal* houses and Sokapana regalia houses, no meeting is held to determine the need or not of building such structures, since their erection is required by the dictates of ritual necessity. In the case of the *fel* or funeral house, the head of the clan subsection of the dead man or woman[33] automatically assumes responsibility for the construction of the house. As we shall see, in a later description of the work involved in building a *fel*, this is no mean responsibility, and generally involves enlisting the co-operation of the whole subsection of the clan, and in the case of small clans the whole clan.

The maternal uncle of the initiand is in complete charge of all activities relating to the *dafal* ceremony and for the purpose of erecting the *ful'n dafal* he recruits a building team consisting of his clansmen who dwell in the neighbourhood of the site chosen for the house. In the case of the *ful'n sokapana*, the head of the ghost society is *ipso facto* chief building organizer, and his team consists of chosen members of the society.

With the exception of the *fel* and such special structures as the *long sit*, the amount of time absorbed in building is relatively small. A large *bia* may occupy ten men for two days, but for all other types of houses a day to a few hours suffices to complete the structure once all the materials have been collected and transported to the building site. The most tedious and time-consuming task is the gathering and preparation of the sago palm leaf thatching material. Women and old men are assigned the job of preparing the thatch, but its collection is the labour of youth. In place of the sago palm leaf, many builders use plaited coconut palm leaves. The weaving or plaiting of these leaves is women's work. In fact, so far as the division of labour in house building is concerned, the preparation of thatch represents woman's sole contribution. On occasion, I have seen a young wife helping her husband erect a storehouse, but as a general rule Tangan women have nothing to do with the actual erection of a house. Where the affair is a communal effort, the energies of the women are mainly directed towards the preparation of food for the feast which always marks the successful completion of the job.

Since the majority of the members of a building team are engaged in the construction of something which is of immediate benefit to themselves, it is incorrect to label the feasts which are held at intervals during the period of construction as " compensatory " feasts. In the main, they are provided by the particular person responsible for inaugurating the activity, without calling upon other members of the building team for assistance in the way of contributions of food. The giving of such feasts is just one of the many acts required of a community leader, and unless a man is able and prepared to provide such feasts, he would not undertake any of the building

[33] Very often, in the case of the death of a woman married to a socially important man, it is the husband who organizes the funeral ceremonies, including the building of the *fel*.

responsibilities heretofore mentioned. It may be said, then, that building workers give their services without payment. They certainly enjoy and look forward to participating in the feasts which accompany building activities, but in no sense of the term can such feasts be called compensatory feasts. I got the impression from listening to comments passed by workers who had just completed a new building, that their chief reward lay in having successfully demonstrated both to their own clansfolk and to visitors their skill as builders.

One of my best informants was a man who loved building and making things. He was an expert carver and very proud of his constructional skill. On more than one occasion he spoke with contempt of the amateurish efforts of other native builders. He was especially critical of people who, rather than go to the trouble of building a new house, tried to repair an old house which anyone with the slightest knowledge of building would know was beyond repair. He criticized not only their lack of building skill but their attitude towards work in general. In speaking of his father on one occasion, he told me that " suppose Sun he come up, he go out with axe and work, work, work. He no catch 'em big *kai-kai*. Just *lik-lik*, that's all. Then he go work, work, make 'm, make 'm, make 'm. Then he come along house when Sun he up on top. He sleep. He catch 'em *liklik kai-kai*. Then he go work, work, work. Sun he go down, he come along house and sleep. Plenty big man—no feller like him stop along Boieng to-day." The last statement is incorrect. There are many diligent workers among present day natives, and especially among building craftsmen. In fact, watching them at work, I felt that, in their eagerness to get the job done, they neglected quality of workmanship for speed of achievement.

This brings us to the question of native discipline and the role of the leader in building activities. To a stranger suddenly confronted with the framework of a building swarming with men and boys, all singing out and yelling apparently contradictory orders the one to the other, there appears to be no evidence of supervision at all. If the job is a small one, then he would not be able to discover who is in charge of the work, because in these cases the supervising carpenter works as hard as any of his labourers. However, where the structure is at all large, e.g. a new men's house or a funeral house, the foreman of works is easily distinguishable by reason of the fact that he is the only person present who is not actually engaged in building. He is constantly appealed to on such matters as the pitch of the roof, the position of doorways, the height of the roof, the length of the rafters, the quantity of thatching material required, and so on. In a majority of cases he likes to shout his orders to the men at work, and they too appear to like the sound of their own voices. If there is any delay in the arrival of bush parties with wanted material, or if there appears to be a more than usual amount of absenteeism on the job, he goes to the log gong and beats out an angry " hurry up " signal, which soon brings results. It all helps to create an exciting atmosphere, full of bustle and good temper, which must help the work along, because it is truly surprising how rapidly a building takes shape once a team begins to work on it. The truth of the matter is that the casual onlooker only sees the culmination of perhaps days or even weeks of preparation, in which a careful

quantity survey is made, transport problems are settled, promises of individual help are given and various parts of the work are assigned to various individuals. On several occasions I was puzzled by the apparent lack of discipline displayed by members of a building team. Their leader seemed to be checking off certain quantities of material required for the job without receiving the slightest response from a number of men within hearing. Later in the day I noticed that each man would arrive on the job with a bundle of poles or a basketful of thatch, which he dumped down without saying a word and without receiving one in acknowledgement.

When the building to be erected is for community use, every member of the community able to work on the project participates in some way. I once saw a band of adolescent boys bringing in a quantity of bamboo poles from the jungle. In order to relieve the tedium of the job, they had socketed one pole inside another so that it looked as if they were carrying one long pole over 100 yards in length. From time to time, the leading boy in the file of carriers would break into a run, and those who followed had to do likewise or suffer the taunts of their companions if the pole became disjointed. In this way they turned a particularly boring duty into a game. As soon as they had delivered their poles at the building site, they ran down to the channel in the reef and swam towards the entrance. On asking the building expert why they were not required to help the men at work on the building, he seemed surprised at my question and intimated that they had already carried out their share of the work and were now free to enjoy themselves. In like manner women, who have been preparing meals for the workers, may often be seen sitting around talking whilst their menfolk are hard at work on the house and old men, who have finished sewing together the required number of sheets of thatch, may be seen quietly smoking and apparently taking no interest whatever in the busy scene. I am convinced that a certain amount of job analysis goes on in this community, and the demarcation of job responsibility is well defined. Results are achieved by the co-operative efforts not of a single group of workers all performing the same tasks at the same time, but by the efforts of a number of small groups each performing an assigned task in accordance with a prearranged plan.

I have already discussed the nature of the building terrain and the wealth of natural material available to the Tangan builder. It only remains to record what types of materials are used in the construction of the various types of houses, and this I have done in the form of a "Table of Building Materials and Structural Components," which appears below.

The processes of transforming the materials outlined in the above table into the various structural components mentioned therein and the constructional application of these components are by no means involved processes in Tanga. However, for purposes of comparison with similar technical processes performed by other Oceanic peoples and in order to complete the record of housebuilding activities in these islands, it will be necessary to describe such operations as planning foundations, erecting wall posts, ridge posts, framework and walls, thatching and decorating. Since the most frequently constructed house is the *ful-ung-kur* or family dwelling house,

TABLE OF BUILDING MATERIALS AND STRUCTURAL COMPONENTS

Component.	Native Term.	Material.	Native Term.	Type of Structure in which Used.
Ridge post ..	(*a*) *tuh.* (*b*) *kamemelele.*	(*a*) Softwoods. (*b*) Bamboo.	(*a*) *kaikai, kumu* (*ficus*), *tau* (*Meliaceæ*), *ura:t, patma, kolas, kulkul, dordor, kifil, dengma:t.* (*b*) *sua:k.*	(*a*) *fel, bi:a.* (*b*) *fel'n fitil, ful-ung-kur.*
Ridge pole ..	*sinluf.*	(*a*) Softwoods. (*b*) Bamboo.	(*a*) *kifil* preferred but others used. (*b*) *sua:k.*	(*a*) *fel, bi:a, fel'n fitil, fulungkur.* (*b*) *fulungkur.*
Wall post	*kamemelele.*	(*a*) Softwoods. (*b*) Bamboo.	(*a*) *kaikai, kumu, tau, ura:t, patma, kolas, kulkul, dordor, kifil, dengma:t.* (*b*) *sua:k.*	(*a*) *bi:a, fulunghur, bum'n fel.* (*b*) *ful-ung-kur.*
Wall plate ..	*gnis-am-bolo.*	Bamboo.	*sua:k.*	*bi:a, fel'n fitil, fulunghur.*
Principal rafters ..	*ahs.*	Bamboo.	*sua:k.*	All types.
Purlin	(*a*) *filam-fel.* (*b*) *fos-fel.*	Bamboo.	*sua:k.*	(*a*) *fulunghur, bia.* (*b*) *fel.*
Ridge sheet ..	*pung-ing.*	(*a*) A type of *pandanus.* (*b*) *Macrozamia* palm.	(*a*) *bel.* (*b*) *bebe.*	*fel, fulunghur.*
Thatch rafters ..	*felof.*	(*a*) Bamboo. (*b*) Pliable bamboo-like grass.	(*a*) *sua:k.* (*b*) *gogo.*	(*a*) *fel.* (*b*) *bia.*
Second and third ridge pole ..	*sugelkuku.*	Bamboo.	*sua:k.*	*fel.*
Scaffolding ..	*kai-iau-iau.*	Softwoods.	*met, kifil, gilgil.*	*fel.*
Roof ladder ..	*sup.*	Softwood.	*pau.*	*fel.*
Wall	*balo.*	(*a*) Softwoods. (*b*) Bamboo.	(*a*) *suphu.* (*b*) *sua:k.*	(*a*) *bi:a, bum'n fel.* (*b*) *fel, fulungkur, fel'n fitil.*
Doorway ..	*mata'n kon.*			
Shutter	*bof.*	Bamboo.	*sua:k.*	*fulungkur, bia, fel'n fitil, ful'n ga:f.*
Lashing	*finau.*	Rattan cane, *lygodium* creeper and other tough fibres.	*bis, esem, wa:lwa:l, ma:la, sufarfar, kis.*	All types.
Gable end ..	*am bel a mata'n kon.*	A pliant wood.	*gelef.*	*Fulungkur, bi:a, fel'n fitil, bum'n fel.*

all descriptions of building operations will be understood as referring to this type of house.[34]

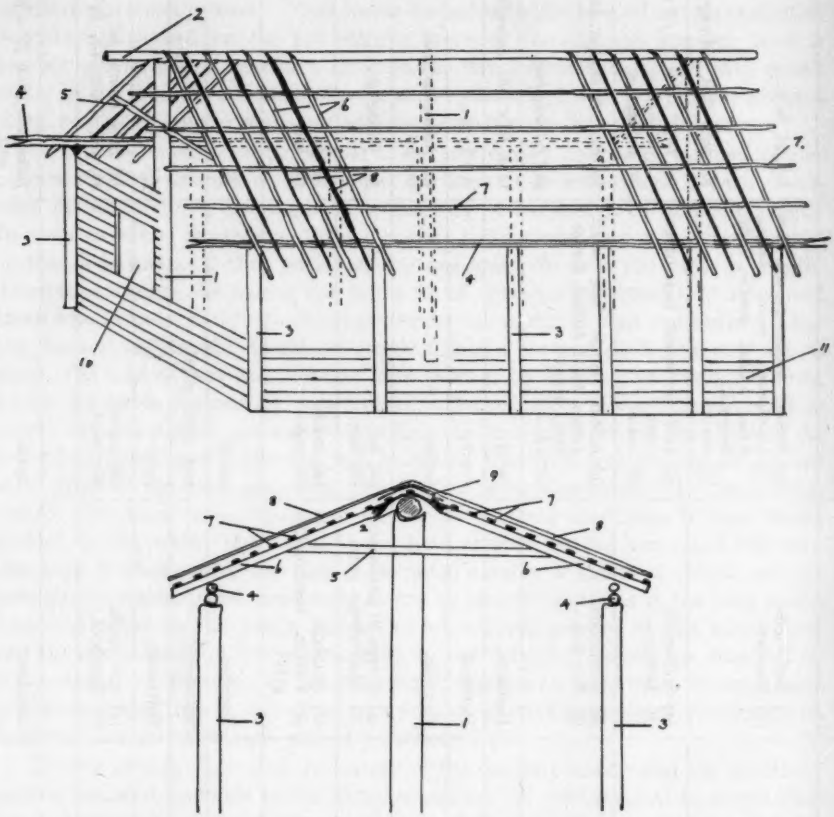


Figure 10.—Framework of *fulungkur*. A. Side view, B. end view. Ridge posts (1) of timber or bamboo: top ends cut concave to fit ridge pole; ridge pole (2) of timber or large diameter bamboo; wall posts (3) of bamboo supporting wall plate (4) consisting of a composite piece of bamboo; end plate (5) fixed below gable opening; principal rafters (6) of bamboo set about six inches apart; purlins (7) lashed horizontally to principal rafters and supporting thatch rafters (8) of *gogo* plant; ridge sheet (9); entrance (10) secured by a bamboo shutter and walls (11) of bamboo rods.

[34] See Fig. 10.

A typical small building team consists of an old man, whose chief function is to advise, three adult men, one of whom is the leader of the team, two twelve-year-old boys, two adult females and a ten-year-old girl. The leader selects and clears, with the assistance of the boys, a level area of ground about 20 feet by 30 feet. This is swept clean by the women with a broom consisting of a number of dried palm leaf midribs tied into a bundle. The leader then marks out a rectangular area six paces long and four paces wide. He does not use a measuring stick to check any of his dimensions. A series of post holes no more than eighteen inches deep is then dug by the leader, as shown in Figure 10, A. If the soil is sandy, no tools are required to perform this operation, the post merely being twisted and forced into the ground. Most natives grasp the upright with the big toe of the right foot as well as with their hands in order to secure a better leverage. Where the soil is hard, the pointed digging stick is used to excavate house post holes. The earth around the base of the posts is rammed down hard with the heel of the right foot. In a majority of *fulungkur* the ridge posts and wall posts are of bamboo but in many cases, small diameter wooden posts are used. Apart from the leader, the male members of the team act as labourers. They cut down lengths of bamboo and gather lashing material and coconut palm fronds. All of these they bring back to the leader, who cuts them into the lengths he requires and decides whether he needs any more. Under his direction, the men and boys lash the ridge pole to the ridge posts, affix the two wall plates and prepare the bamboo rafters. The ridge posts are slotted so as to receive the ridge pole and, as in all cases where it is necessary to join two intersecting pieces of timber, the latter is lashed to the former with Lygodium creeper. The knot used to effect the union is an exact replica of that known to us as the " clove hitch." The wall plates consist of two twenty feet lengths of bamboo which, having first been bound together, are placed on the wall posts and lashed thereto in the same way as the ridge pole is lashed to the ridge posts. Since the house is only fifteen feet long, this means that the wall plates protrude for almost three feet at both ends. The ends are sharpened and act as a rudimentary form of protection against night prowlers. They are known as " the teeth of the house," and have an interesting connection with the practice of sorcery.

The rafters are over fifteen feet long and a scarf is cut on the underside of each one at the centre so as to allow the bamboo pole to bend without breaking when placed over the ridge pole. Approximately thirty rafters are required for a house fifteen feet long, thus leaving a space of four to five inches between each rafter. The two ends of each rafter protrude beyond the wall plates only slightly, thus leaving little or no eaves. As soon as the roof frame has been lashed together tightly, attention is given to erecting the side walls of the house. These consist of rods of bamboo laid horizontally and lashed one on top of the other until they reach the wall plate. They are reinforced on both sides, i.e. both inside the house and outside by upright bamboo stringers set about nine inches apart and roughly five feet long. This three-ply bamboo wall may appear flimsy, but it is actually of stout construction and well able to withstand the high winds which accompany the monsoon rains.

The end walls are constructed in the same way as the side walls except that there is no strong end plate corresponding to the side wall plate. Before the building of the end walls commences, the supervising carpenter checks the framework for perpendicularity and having satisfied himself that the house is perfectly upright. he begins to build up his end walls. These are continued up the structure to a height of approximately six feet, leaving a triangular gable opening for the escape of smoke at both ends of the building.

At one end, generally that which faces towards the dancing square, a narrow rectangular opening (*mata'n kon*) is made which acts as the only entrance to and exit from the house. This doorway is about two feet wide and three feet high and its bottom edge is about two feet above the ground. In the absence of the occupants, the doorway is kept closed by means of a slotted bamboo shutter. In the village of Tenkuien, I saw a hinged shutter[35] swinging from the *mata'nkon* and, on putting it

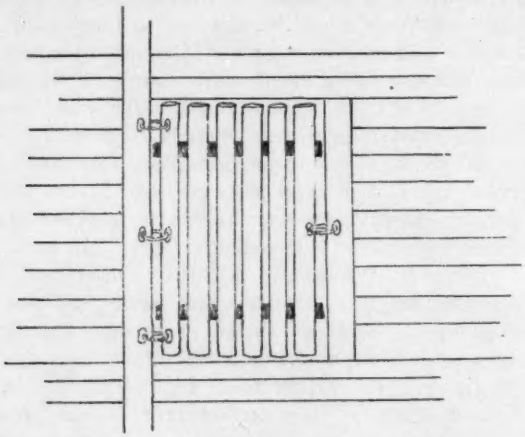


Figure 11.—Bamboo house shutter (*bof n'mata'n kon*). Framework of bamboo rods, held together by two transverse pins of split bamboo. Hinges and fastening of *Lygodium* creeper.

to the owner that he had adapted it from a door seen in Rabaul, he vigorously denied the suggestion and all of his friends standing around unanimously supported him in his assertion that it was a genuine feature of the culture. I still have my doubts as to its authenticity but report it as, at least, an ingenious modification of a standard item of material culture.

Fixing the roof of the house is perhaps the operation which calls for the most skill and absorbs the most time in house building. The standard roofing material is the leaf of the sago palm (*atof*). There is actually no other material recognized by

[35] See Fig. 11.

the natives as an alternative to this material, and when, as is often the case, they cannot obtain *atof* and are forced to use woven coconut palm frond, they regard the use of this material as a temporary expedient. When I was in Boieng, there was not a single leaf of *atof* available on the island and most of the smaller structures were being roofed with plaited coconut palm fronds. The frond is split down the centre of its mid-rib and each part of the frond is then woven, in a tight basket weave, into a large leaf " tile," measuring about three feet by one foot six inches. These " tiles " are affixed to split bamboo purlins, commencing from the purlin nearest the wall plate and working up to the ridge pole. A roof which has been properly thatched with this material is quite waterproof, but soon deteriorates and has to be replaced within three months. A similar roof, thatched with *atof*, outlasts the framework of the house and I have often seen a good *atof* roof being lifted holus-bolus from its old supports and fitted to a newly erected framework.

The chief source of sago palm leaf in Tanga is the small island of Tefa, about twelve miles to the south of Boieng Island. The people of Tefa have a valuable asset in their sago palms and are by no means ignorant of this. They exact quite substantial fees from non-relatives in Boieng requiring thatching material. The standard price to " strangers " is the product of a single palm in exchange for one shell disk of the *tintol* type and the product of two palms in exchange for a disk of the *waran tung* type. So far as relatives are concerned, especially fellow members of the owner's clan, there is no charge made for supplying *atof*, although a *quid pro quo* in the form of a gift pig or an invitation to a series of feasts is always expected and generally made.

It will be realized from the foregoing that one of the principal matters for discussion among members of a group contemplating the erection of a house is how much *atof* will be required, whether it can be supplied, and how much it will cost. Building experts are remarkably adept at calculating just how many leaves are needed to roof a house. Sumsuma, who lived at Anifnabia, in the centre of Boieng Island, told me that he calculated his *atof* requirements so well that he had no need to make a second journey to Tefa, and when the house was roofed he had only a few leaves left over.

The first process in preparing thatch is the longitudinal bisection of each leaf and the removal therefrom of the midrib (*sinaf*). The latter are not discarded but put aside for use later on as interconnecting pins. Purlins of split bamboo up to ten feet in length are next prepared and passed to the women and old men at work on the *atof*. Each half of each leaf is doubled over the purlin in such a way that it overlaps the next leaf and by means of a bone skewer a neat hole is made through the lap. A piece of midrib is then threaded through this hole in such a way that it connects several adjoining leaves.[36]

When no more leaves can be attached to the purlin, it is handed up to a boy sitting on the rafters who holds it in place whilst other operators, working from inside

[36] See Figure 12.

the house, lace it to the rafters. This process goes on until the whole roof is thatched. Each purlin with its attached sheets of thatch is made to overlap the one immediately below it, so that the roof actually consists of four thicknesses of palm leaf. In most *fulungkur* the purlins project about four feet over the end of the house in which the doorway is made, thus providing the building with a verandah-like gable over its entrance.

As a further protection against the weather, a special ridge sheet (*punging*) made from the tough leaves of the Macrozamia palm is fitted over the top of the ridge pole. Finally, in order to ensure that the thatching does not lift during windy weather, a series of thatch rafters, consisting of split bamboo or the long stalks of the *gogo* plant, is laid over the top of the ridge sheet and secured at the extreme ends of the main rafters.

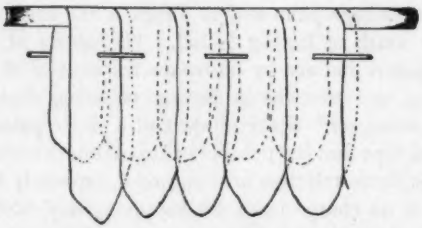


Figure 12.—Sketch showing method of attaching palm leaf thatching (*atof*) to the purlin (*fosfel*).

All structures of a relatively permanent character such as the *bia* and the *fel* and certain special structures such as the *bumn'fel*, *fuln'gnisa* and *felbungbung*, in the construction of which wall planks of wood or ridge posts of wood are used instead of bamboo, are decorated with painted designs and carvings in relief. The simplest form of decoration is effected by staining all wooden parts with a calcareous sea-weed known as *mof*. The *mof* is taken straight off the reef and, without any preparation, is squeezed in the hand and rubbed all over the wooden walls and house posts. When it dries it has the appearance of a coat of flat cream paint. It can be regarded as the Tangan painter's " prime coat." since it is always used as a first coat no matter what other dyes are subsequently added to a decorated object.

The principal parts of a house subject to decoration by painting are the end walls.[37] Typical of this form of decoration is a design consisting of formalized masks, lizards, snakes, sharks, shell-fish and star-fish. The chief colours used are white, yellow, red, blue and black. In many cases, the painted design is in the form of a relief carving. I have seen painted carvings of all of the above on the outer walls of *bia*, and in addition representations of the human head, a female dancer, a section of a large fish, a sea bird and the head of a pig on the inside wall planks of *bia*. How-

[37] See Plate III, C.

ever, these forms of Tangan art are comparatively rare and found only on houses occupied by individual natives with an inborn appreciation of artistic design. I did meet three or four such men during my stay in Tanga, and they were all immensely proud of their work. The motive behind such work is purely æsthetic.

The Tangan artist achieves his best results in the carved and painted ridge posts (*tuh*) which support his funeral houses. An average sized funeral house contains between eight and ten such ridge posts, and I have never seen a post which was not carved and painted in some way. I could not discover whether the designs incorporated into a particular *tuh* had any ritual significance in relation to the person responsible for presenting it to the chieftain who was organizing the building of the funeral house. I am inclined to believe that *tuh* designs have no such significance.[38] One of my best informants was a skilled carver of funeral posts, and so far as I could tell he just allowed the design to develop as the fancy took him. He knew the names of the various design features which he incorporated into his carving, and apart from a strict adherence to these features he was principally interested in producing a balanced piece of work. The wood used is a soft wood, easily cut with steel tools and fairly easily carved with shell tools. The more intricate parts were done with the aid of a sharpened boar's tusk. To-day, carving is not a professional occupation but a spare-time occupation of a few men with artistic skill and inclinations. They are paid for their work in shell currency and hold a special place of esteem in the community.[39]

Up to this point, our description of the organization of labour in the building industry, of the materials used in building operations and of the techniques employed in the use of such materials has been of a general character. It should provide a careful reader with a general conception of the state of building in this community. However, it does not adequately describe the unique position occupied by the funeral house (*fel*) in the social and economic life of the Tanga and it is now proposed to describe the building of an actual *fel* as witnessed by the author during his stay on the island.

The house in question was built by an important member of the Filamat clan in order to celebrate the funeral rites of his wife, a member of the Fasambo clan who had died some five months prior to the beginning of building operations. In the case of an ordinary member of the community, the responsibility for arranging the funeral rites of a married woman, including the building of the *fel*, is not that of her husband but of her eldest brother and other closely related members of her own clan. In the case which I am about to describe, the husband, owing to the high position which he held in the community and the deep affection which he had for his wife, assumed the responsibility for organizing the whole cycle of funeral rites. Members of the woman's

[38] In the case of a *tuh* in a *bia* at Sassa, which bore a relief carving of a man's head, I was assured that this carving was supposed to represent a dead ancestor who had been buried beneath the floor of the *bia*. I was also given similar assurances and also the name of the man—Nengna-balantung—in the case of a *tuh* with a carved head which I saw in a *bia* at Sunmul.

[39] See Figure 13.

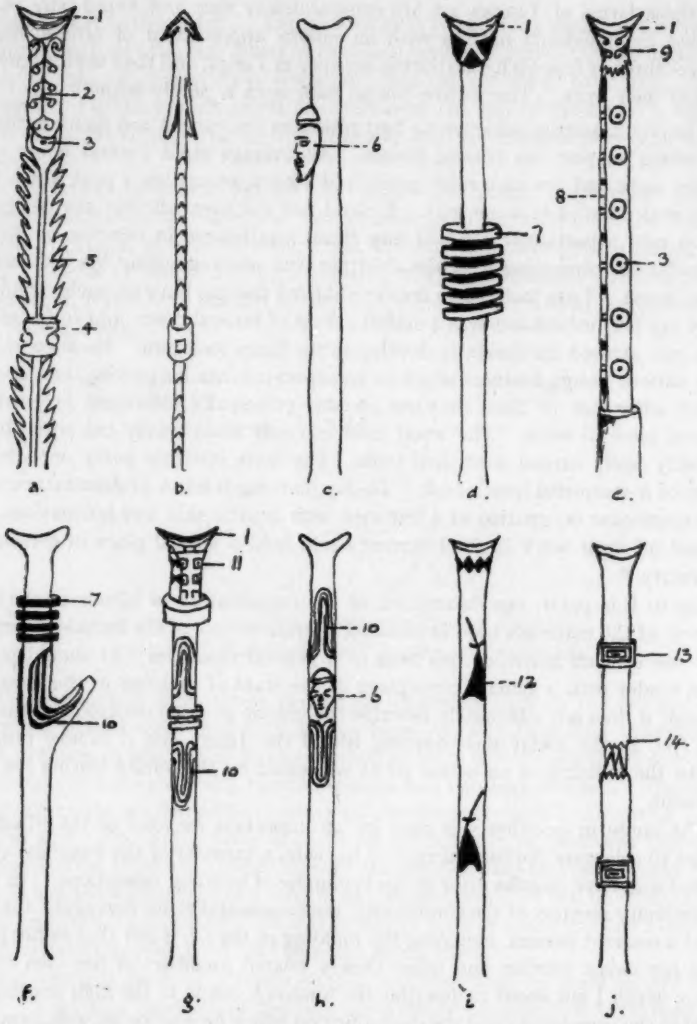


Figure 13.—Carved and painted ridge posts (*tuh*). The following design elements are incorporated in the examples illustrated above: 1. Moon. 2. Shell spiral. 3. Kapkap breast ornament. 4. Fish cross-section. 5. Leaf. 6. Human head in relief. 7. Clam shell currency (*tintol*). 8. Water snake. 9. Fern spiral. 10. Human thigh bone (*tuanere*). 11. Fish scale. 12. Dancing mask. 13. Lizard skin. 14. Teeth.

descent group played their usual roles in the ritual attending her obsequies, with the exception of her eldest brother, who had to be content with a much smaller part in the preliminary rites connected with the building of the funeral house.

The reader must assume that five months have elapsed since the death of the woman, during which arrangements have been made with five members of her clan, each one representing a group of close relatives, to contribute a number of pigs and large quantities of vegetable food towards the several feasts which are the natural accompaniment of the various funeral rites.

The first ceremony actually connected with the erection of the *fel* takes place during the holding of a feast called *en kulkul*. Each one of the five relatives of the dead woman contributes several baskets of cooked food towards this feast. These are placed on specially constructed display benches at the side of a spacious clearing (*bal'n ma:li*) in the centre of the settlement. When all are assembled, the husband of the dead woman announces that a funeral house is to be erected on the *bal'n ma:li* and that it will have seven ridge posts (*tuh*), two of which he will contribute and the remainder will be supplied by the five previously mentioned relatives of the dead woman. He then places a bamboo stake (*matdorfel*) in the ground to mark the position of the first ridge post. From this stake he carefully measures out, heel to toe, a distance of ten foot lengths and then inserts another stake. This process, called *buti fel*, is repeated until the seven *matdorfel* have been placed in position. A line is then stretched from stake number one to stake number seven and any necessary adjustments in the positions of the intervening stakes are made. The master of ceremonies then goes over to the food display benches and transfers to the base of each *matdorfel* a large basket of cooked food. This is known, individually, as the *waran gus*[40] and, collectively, as the *are fel* or "oven of the house." Temporary bamboo seats are erected facing the line of *matdorfel* and the female relatives of the deceased come forward, seat themselves, and are served with food from the baskets remaining on the display benches, by the men. The master of ceremonies then formally presents the *waran gus* to each of the five relatives who have promised to provide a ridge post for the funeral house. He is careful to present food brought by A to B and food brought by B to C, and so on, until each man has received a basket of food originally supplied by someone other than himself. His final words to his guests concern the making of special gardens, known as *palang n' kinit* or "the garden/of the/ghost." For the succeeding two months, the principal mourners are kept busy with these special gardening activities and it is only when the husband of the dead woman is satisfied that there will be more than enough food for the funeral feasts that he initiates the next positive action connected with the building of the *fel*.

This takes the form of a feast called *en fa:fa:s*, to which, in addition to the five principal mourners, many other important men on the island are invited. The food eaten and distributed at this feast comes from the *palang n' kinit*. A small basket

[40] The *gus* is the pig and other food which is presented at the final funeral feast. *wara* means "source or origin of," thus the whole phrase indicates the symbolic nature of each basket of cooked food.

containing two sprouting coconuts, two green coconuts, a bunch of areca nut, a sprig of betel pepper and two yams is then presented formally to the important guests and the five principal mourners. The acceptance of this present of " mourning food " lays the acceptor under an obligation to provide at least one pig for the final funeral rites. At the end of the feast, the master of ceremonies calls upon the five principal mourners to make ready the carved and painted *tuh* for the *fel*. He actually calls the funeral house the *bi:a 'n kelifin* or " woman's *bi:a* " because the principal guests on several occasions are the female relatives of the deceased.

Within the next two weeks, the seven *tuh* are cut and carved and painted and when ready, each one is stored within the *bi:a* of the principal mourner concerned. Arrangements are then made for each of the principal mourners to bring his *tuh* to the settlement of the husband of the dead woman. On the morning of the appointed day, each mourner, accompanied by a large party of relatives carrying baskets of food, called symbolically *palang ma:pek* or " sacred/garden," and several pigs and, of course, the decorated ridge post, makes his way through the jungle with much shouting and beating of signal drums to the " village " of the chief organizer. Arrived here, he is greeted by the latter with a present of a shell disk (*tintol*) and a bunch of areca nut. The ridge post is placed on the display bench along with the baskets of food and the pigs are laid in a long line at the base of the display benches. The chief organizer then places a shell disk on each of the pigs, This procedure is repeated for each one of the five principal mourners and, in addition, the two ridge posts provided by the chief organizer are put on display. The persons who presented the pigs come forward and take in exchange the shell disks laid on their pigs by the chief organizer.

At a signal from the latter, a number of young men now remove the bamboo stakes which were placed in position at *en kulkul* and erect in their place the seven decorated *tuh*. These are sunk into the ground to a depth of eighteen inches and the top of each post stands between eight and nine feet above the level of the ground. The height above ground level of the seventh post is carefully adjusted to that of the first post and a line made from a jungle creeper is then extended between these two posts. The position and height of the five intervening posts are then carefully adjusted in accordance with this line. The chief organizer then places a bundle of *pau* leaves at the base of each ridge post. He then proceeds to " distribute "[41] the pigs to an entirely different set of men to those who brought them. He holds in his hand a bunch of sago palm midribs (*sinaf*) and as he calls out the name of a man, he throws one of these *sinaf* to the person named, at the same time saying : " Nebingit ! A *sinaf* to Nebingit ! Go, gather together your relatives for the ceremony of placing the ridge pole ! "

The bunches of *pau* leaves (*an uili'm pau*) are then formally presented to each one of the five principal mourners, who on his return to his home village breaks up

[41] I have used the term " distribute " here but the person to whom a pig is *sinaf'd* does not get the live pig but merely the head and shoulder of the pig when it is cooked and distributed at the feast.

the bundle and sends out messengers with separate leaves, called *am pong*, to certain of his relatives who are under an obligation to him. The receipt of one of these *pong* means that the recipient is expected to provide, on demand, as many yams and coconuts as he can spare for the use of the sender.

The next piece of constructional work done on the *fel* is the erection of scaffolding (*kai-iau-iau*) around the base of each *tuh*. This is not done to the accompaniment of any ritual, mainly because it is work of a temporary nature which is removed during the latter stages of building. Four posts standing hip high are erected so as to form the corner posts of a six feet square. On top of these posts four poles are placed so as to form a framework upon which the builders can stand to raise the heavy ridge pole which fits on top of the line of *tuh*. In the case of this particular *fel*, which was only sixty feet long, only two thirty feet ridge poles (*sinluf*) were required. Any suitable straight stemmed tree with a diameter in the region of twelve inches is felled and stripped of its bark and brought into the settlement of the chief organizer to the accompaniment of the usual shouting and singing. It is then placed on the scaffolding in readiness for placing on the ridge posts.

In the presence of a large crowd of guests and relatives who bring along many baskets of *am pong* food, the young son of the dead woman is brought forward by his father, decorated with lime on his chest and his back, and made to join a procession of the five principal mourners. These men conduct the boy to the scaffolding around the first *tuh* and lift him on to the ridge pole. He then walks slowly and silently along the *sinluf* until he reaches the end of the house, when he descends and joins his father on the outskirts of the crowd. A band of young men then approaches the line of scaffolding and grasping hold of the heavy *sinluf*, raises it to the top of the ridge posts. The *am pong* food is then distributed and some of it is eaten immediately. At the conclusion of the feast, the chief organizer announces that many men will be needed within the next few days to cut bamboo poles with which to form the walls of the house. For the walls alone, over 1200 lineal feet of bamboo are needed for a *fel* sixty feet long.

When sufficient material has been cut and delivered at the building site, the construction of the walls of the house is commenced. A double line of split bamboo staves about three feet high on the outside and four feet high on the inside, and only a few inches apart, is erected on either side of the line of ridge posts and at a distance of approximately five feet from the centre line of the house. It should be emphasized that every process connected with the building of a *fel* is performed as expertly as possible. All measurements and levels are absolutely correct right throughout the building. Nothing is done "rough fashion." The cavity walls formed by the perpendicular bamboo stakes are made solid by inserting within the cavity horizontal lengths of bamboo approximately three inches in diameter and socketed the one into the other along the whole sixty feet of either wall. These bamboo poles are inserted until the wall reaches a height of three feet. The top pole of the wall is then lashed to the top of the outer line of bamboo stakes and another piece of bamboo running the length of the house is split slightly and fitted over the tops of the inner line of

perpendicular staves. This latter pole stands about a foot above the top pole resting in the cavity wall. The whole wall is then lashed securely together by lacing the horizontal poles within its cavity to the outer and inner perpendicular staves. To mark the successful completion of the walls, a small feast called *mohr n' balo* (feast/in connection with/the walls) is given the workers and final preparations are made for the cutting and supply of the sago-palm leaves used in thatching the house.

Whilst the thatching material is being obtained, one section of the building team is preparing hundreds of split bamboo rafters. These are made by splitting twenty feet rods of green bamboo lengthwise into three strips. These long strips are then passed over the top of the *sinluf* at right angles to it and fastened at their ends to the corresponding outer perpendicular staves of the side walls. These rafters are affixed to the house from the front to the back at six-inch intervals. Where they meet the ground on both sides of the house they are neatly cut off and lashed to the side walls. They are also lashed to the *sinluf* and to the top horizontal pole which fits over the inner line of perpendicular wall staves. A second ridge pole (*an sugel kuku*) of stout six-inch diameter bamboo is then laid over and along the top of the main ridge pole. This operation brings to an end the construction of the framework of the house and is celebrated by a small feast. The food distributed at these small feasts for the workers consists only of vegetables and fruits.

Many days are consumed in sewing the sago palm leaves (*atof*) to the split bamboo purlins (*fosfel*) and when these have been laced to the rafters, commencing about eighteen inches from the ground on both sides and going right up to the junction of the two ridge poles, there only remains the job of laying on the thatch rafters (*felof*). These are of lighter construction than the main rafters and are placed diagonally over the second ridge pole so that they form a pattern which is best described as an open diamond weave.[42] A feast, somewhat larger than usual, called *mohr n'papti fel*, i.e. " feast/in connection with/the tightening up of/the house," is held on the day succeeding the fixing of the thatch rafters and is attended by many relatives of the dead woman as well as those who have been working on the house. Special signals (*sif ki kiok*) are beaten out on the log gongs, announcing the end of building operations and inviting all within hearing to approach and admire the structure.

The final feast, to which everyone who has had anything at all to do with these rites is invited, is called *en pung-ing*, i.e. " feast/ridge-sheeting." It is held to celebrate a very simple operation, the placing of a special thatch coping (*pung-ing*) over the top of the second ridge pole. This operation is turned into a rite symbolic of the final completion of the house. At a signal from the chief organizer, six young boys mount the roof and lace on the ridge sheet. As soon as the last knot is tied in the last leaf, the log gong rattles out its signal announcing the end of house-building operations and the distribution of the food commences. In some cases the building is finished off with a ridge coping of split bamboo about 18 inches wide. This is lashed to the *felof* and makes the structure absolutely water-tight and wind-proof.

[42] See Plate II, A.

From now on a whole succession of feasts and rites are held in the completed house,[43] but with these we are not concerned in this context.

We have outlined in detail the industrial and social processes connected with the construction of a funeral house. We have seen how the obligations of kinship are so co-ordinated as to produce an economic surplus at a time which suits the convenience of the master builder. We have had evidence of the latter's organizing efficiency and of the relation between his ability to lead and his ability to distribute wealth. Little has been said, however, of the attitude of the ordinary native towards large industrial projects such as we have just described. There can be no doubt that he co-operates willingly in such projects. The motivating force is mainly a matter of tradition, but clan pride and the personal satisfaction of having had a hand in the production of such a beautiful building must be taken into consideration. Apart from this, the reader must realize that death is the *leit motif* of this culture and if a native is to lead a " full " life, he must be constantly concerned with funerary rites. A major part of those rites has to do with the building of the *fel*, so that it can truly be said that in such an occupation the Tangan finds one of life's keenest satisfactions.

The House and the Community

There is evidence that primitive people of the same cultural level as those with whom we are concerned in this study tend to endow certain objects of material culture with a sentimental value out of all proportion to their intrinsic value or, at least, tend to regard such objects with strong feelings of attachment. With the object of testing whether such evidence can be found with respect to houses in Tanga, let us try to define the attitude of the community towards a few examples of the house.

The men's house (*bi:a*) is more than a dwelling place for the living, and a guest house for visiting kinsmen from abroad ; it is also the repository of the dead, for it is customary to bury the corpse beneath the floor of the *bi:a* in a shallow bark-lined grave[44] for a period of several months, when it is exhumed and, with the exception of the skull and upper limb bones, given permanent burial in the clan cemetery. The existence of such a custom imbues the *bi:a* with a magico-religious significance which must be taken into consideration in any attempt to describe the relations between a community and its men's house. It explains the reluctance of most communities to alter the site of their men's house and the general preference for renovating an old house to, what would appear to be a much easier task, building a new house on a fresh site. The act of burying the dead in the *bi:a* and the fact that, whilst the corpse reposes within the house, the lamenting relatives live in the closest association with it, have the effect of sacrilizing this residence of both the dead and the living.

During my stay in Tanga I had the rare experience of taking part in what can be conveniently called a " house warming " ceremony and of seeing in action the

[43] For a complete account of mourning rites in Tanga, see my " Death in Tanga," *Oceania*, VII, pp. 316-339.

[44] A custom now abandoned by order of the District Officer. See f.n. 31.

social mechanism by which a new men's house is formally thrown open to community use. The ceremony is known as *do-ut*, and is held a few days after the final completion of the house. Small parties of young men who have helped to construct the *bia:* decorate themselves with feather head-dresses, paint their chests and faces with lime and visit every community within the "country" of their clan sub-section. They sing and shout as they make their way along the jungle paths and carry to each village settlement an invitation to spend the night in singing and feasting within the new *bi:a*. As each guest arrives, he carries with him a basket of cooked food, a supply of areca nut and betel pepper and as many noise making instruments, such as lizard skin drums, bamboo gongs and coconut shell hemispheres, as he can muster. The senior resident of the new house greets each guest and shows him to a seat just within and to the left of the entrance to the house.[45] With the arrival of each new guest, the whole company seated inside the house moves along the low bamboo seat, which runs around the inner walls, one place, so that each man in succession occupies the place of honour just within the doorway of the house. It is highly desirable that, on the occasion of a *do-ut*, the house should be packed to capacity and from my own experience I have no doubt that there is never any difficulty in bringing this about. There was a surplus of guests on the occasion of my visit to Sassa, the village in which the new house had been erected, and many had to be accommodated on bamboo benches outside the house. I noticed that many scores of women were present and, although they were not allowed inside the house, the thatching along the eaves was raised slightly so that they could look in on the scene and receive dainties in the way of areca nut and cooked yams from their male relatives within. In fact, I observed a noticeable slackening in the normal behaviour relations between the sexes on this occasion.

By dusk, all who had accepted the invitation to be present had arrived. The song leaders then began a long series of *walau* which were a replica of those which were sung during the canoe caulking ceremonies[46] and which, like the latter, lasted through the night until just before sunrise. The songs, so far as I could discover, did not make specific mention of the new house in the same way as those which were sung during the canoe making ceremonies made special reference to the new canoe, but it can be inferred that the joy associated with such a song feast communicates itself to the new house.

The Tanga have a word for social prestige—*kep ma:li*—and they also have a phrase to describe a person who has *kep-ma:li* to an extraordinary degree. He is referred to as a *ka:ltu taufi*. To become a *ka:ltu taufi*, it is necessary for a man to be a member of a large and important clan, a cunning warrior, a born leader of men, a skilled organizer of feasts and a person of great wealth. Such a person does not acquire the right to be known as a *ka:ltu taufi* by reputation alone. There is a

[45] This is the seat normally occupied by the head of the house. He leans his back against the ridge post at the entrance of the *bi:a*. See my "Avoidance Situation in Tanga," *Oceania*, Vol. VI, p. 182, for a diagram illustrating the seating plan of a *bi:a*.

[46] See *Oceania*, Vol. XIX, p. 220, for a full description.

socially recognized method of acquiring high rank in Tanga. The candidate who desires to be publicly endorsed as a *ka:ltu taufi* is required to erect an elaborate house, known as a *bungbung*. The design of the house closely resembles that of a *fel*, with this exception : the walls of the house are constructed of wooden planks instead of bamboo rods. These planks give the house its name. They are the *bungbung* planks and are regarded as " sacred " or subject to certain ritual prohibitions. The Tangan phrase used to describe them is : *bungbung i burburif*, i.e. " the planks/are/ taboo." They are not allowed to touch the ground, and no man is permitted to walk over or jump over the logs from which they are cut. They cannot be touched by women or children and whilst they are on display no fights or quarrels must occur in the village.

The house is much longer than a *fel* containing up to twenty-five ridge posts and its inner walls are decorated with carvings in relief. The method of organizing labour employed in the building of the house is similar to that used in building the *fel* except that everything is done on a much grander scale. My informants could name only five men within living memory who had been rich and powerful enough to afford to build a *bungbung*. The culmination of all the rites connected with this ceremony is reached when the candidate mounts the roof of the house and walks along it, arrayed in an elaborate feather head-dress and many valuable shell necklaces. A choir of senior members of his clan sing a series of songs (*am furis*) calculated to impress the audience with the power and glory of their clan and then they address their chieftain, not by his own name, but by the name of a celebrated *ka:ltu taufi* of the past. Thenceforward he is known by this name and is publicly recognized as having assumed the rank and obligations of his namesake.

It should be obvious from the foregoing that in the case of the *bungbung*, we have an example of the employment of an architectural object as a means of focussing public attention on the superior social position of an individual and of the clan to which he belongs. In the case of the *bi:a*, used as a house of burial for dead members of the clan, we have a clue to the semi-sacred position occupied by this structure in community affairs and in the case of its use as a centre for social gatherings of a joyful character, we have evidence of yet another aspect of its place in community life.

We have now completed our survey of the building art in Tanga. We have shown how closely architectural design is related to function and how availability of materials and type of terrain have tended to modify style. We have also examined carefully the question of the organization of labour in building, the relation between materials and structural components and the actual processes of building construction. Finally, we have stressed the special social significance of certain types of houses. Although this study has been made with the primary purpose of demonstrating the level of architectural practice in a Melanesian community, there can be no doubt that, as an ethnographic exposition, it has also demonstrated the impossibility of dealing adequately with one aspect of a culture without constant reference to the whole of that culture.

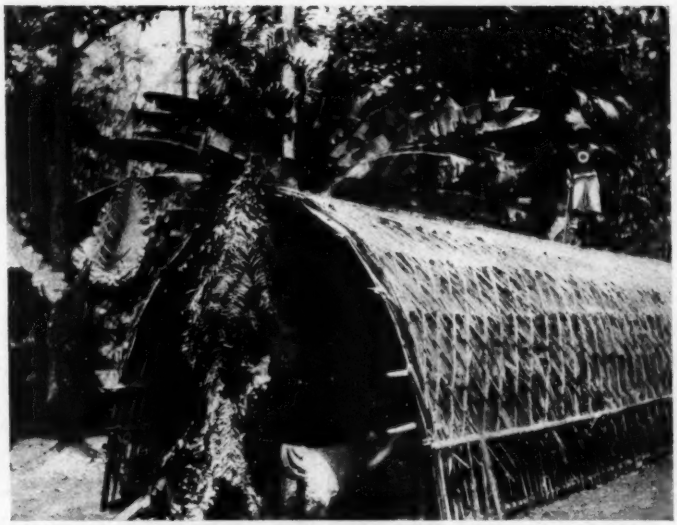
Along with the study of the manufacture of water-craft, which forms Part I of this article, our account of building in Tanga should provide students of Melanesian culture, and especially students of Melanesian economics, with " primary source " material of a character which, as the years pass, is becoming more and more difficult to obtain.[47] The author is well aware of the many gaps in the above account, especially in the sphere of statistics. Economic facts carry ever so much more weight if the investigator is able to give them concrete values. If, in these two studies, I have been more concerned with the social effects of industrial processes than with their technological analysis, my early training as a social anthropologist is to blame and, perhaps, an ineradicable belief that a study of the former is of so much more value as a key to understanding a primitive culture than a study of the latter.

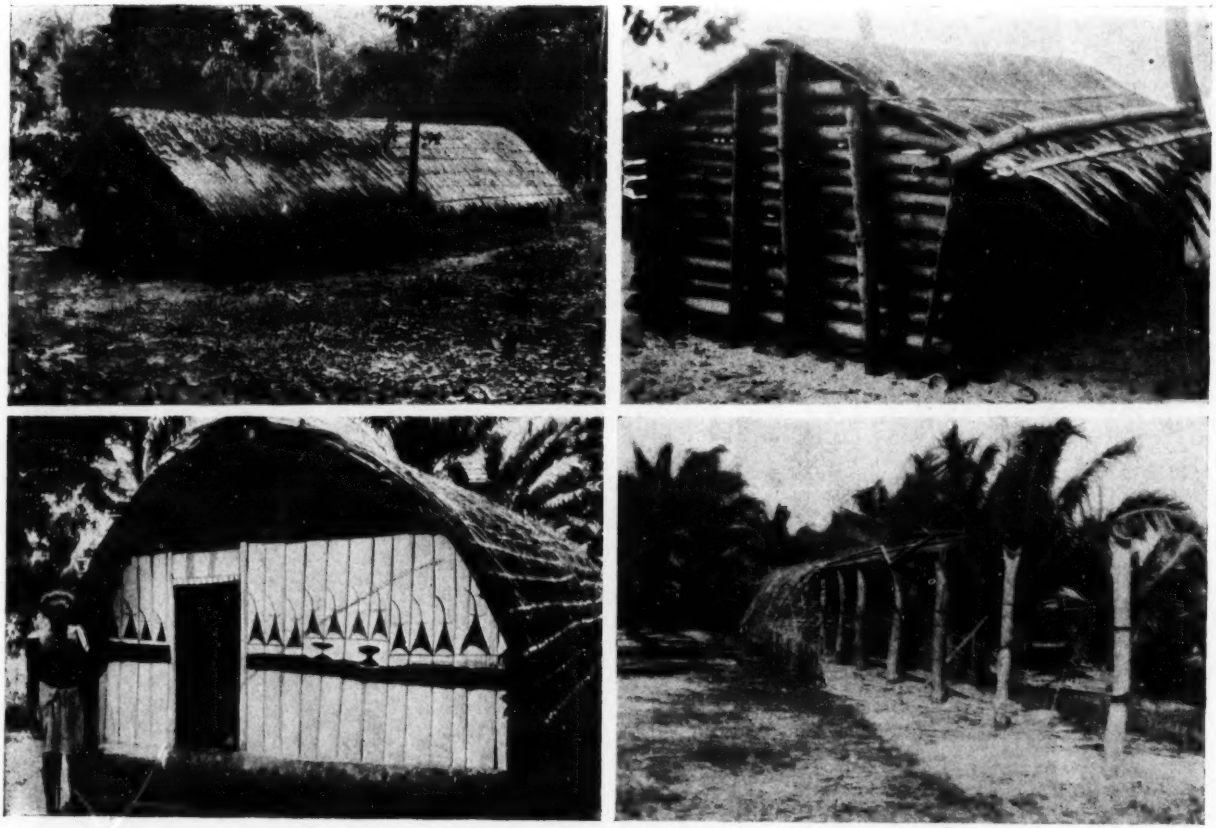
F. L. S. BELL.

[47] In the introduction to this article, reference is made to the author's intention to describe the shell currency industry in Tanga. It is not now proposed to proceed with this study in this series of economic articles. Readers interested in the subject are referred to my article on " The Social Significance of *Am Fat* among the Tanga of New Ireland," *Journal of Polynesian Society*, Vol. XLIV, pp. 96-111.

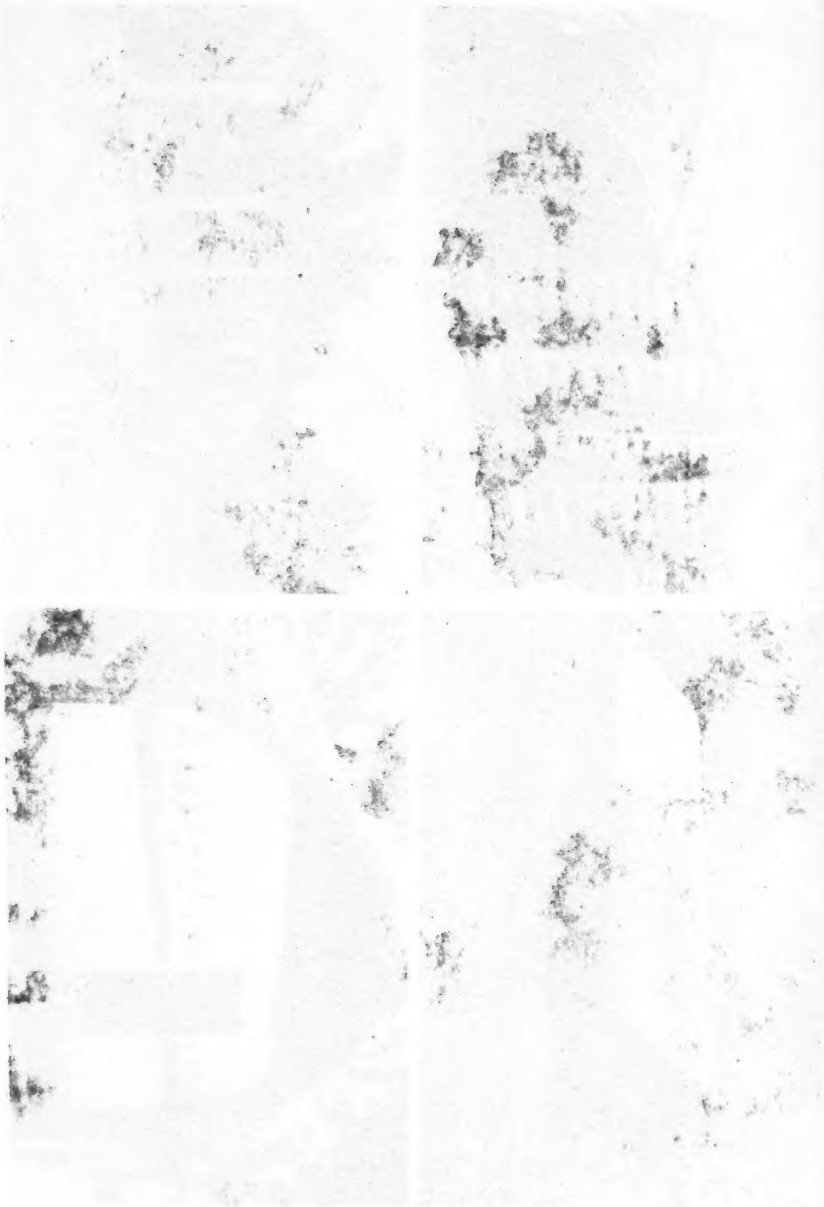
THE INDUSTRIAL ARTS IN TANGA. PLATE I

A. *Tangan funeral house or* fel, *over* 100 *feet in length.* B. *Ceremonial food container or* long sit, *in process of decoration.*





A. *Typical men's house or* bi:a. B. *Small grave house or* fel lik. C. Bi:a *showing end wall decorated with dance mask design.* D. *Remains of a* fel *showing* tuh *and details of interior.*



DISTRIBUTION OF LANGUAGES IN THE CENTRAL HIGHLANDS, NEW GUINEA

By A. Capell

(Continued from *Oceania*, Vol. XIX, No. 3)

It now remains to give specimen vocabularies of these languages, and to suggest as far as possible their outside relationships. The bulk of the vocabularies have been collected by the present author through various media, chiefly pidgin English, Kâte and some of the better known western languages themselves. This accounts for the groups covering slightly different fields and for this reason also they are given in two separate groups, which are not entirely commensurable. It is hoped that further study at an early date will extend and improve these vocabularies.

The groupings are most obviously conditioned by the geographical peculiarities of the country, although this is not entirely so. The greatest division is between eastern and western, though the Kainantu area must be separated off from the eastern. The languages forming the Kainantu group stand farther apart from all the others than the remaining eastern and western groups stand from each other. It may prove later that the groups to the south-west, towards Mumeng country, may link with the Kainantu group. Nothing is known of these as yet. Perhaps it would be better to say that the one specimen of a Mumeng language taken by the author shows no connection with the Kainantu area or even with Forei. This specimen will be given later, after the Eastern Section vocabularies. In the Kainantu area there appear to be a large group of smallish tribes with little radical connection. The farther west one goes, the larger become the groupings and the wider the mutual links. The Benabena group is much more homogeneous than the Kainantu group, though this also shows considerable divergence in vocabulary from language to language. Its grammatical unity is obvious, as appears from Part II of this paper. The same remark applies in lesser degree to the Kainantu languages. How large the populations in the west that speak either one language or closely related dialects of one language may be, cannot yet be said, owing to lack of full exploration. It would seem, however, that numbers from 25,000 to 50,000 can be thought of in the Chimbu-Hagen regions. This, for New Guinea, is very large.

The grammatical kinship of the Kainantu group of languages is fairly clear, although present information is not sufficient to enable it to be worked out in detail. Reference to the Table of Pronouns (*Oceania*, Vol. XIX, No. 2, p. 112) will show that the languages have a certain structural type in common, and that certain of the pronouns agree in their root forms. Moreover, these root forms are quite different

VOCABULARIES. (1) KAINANTU AND EASTERN BENABENA GROUPS

English	Agárabi	Taiora	Forei	Gadsup	Binumarian	Kamano	Hófaga
1. head	*-no*	*jeta*	*nomba*	*-no*	*kia*	*nage'nupa*	*natai*
2. hair	*-(d)zo*	*kahe*	*ja:ra*	*-djo*	*sausi*	*nazoka*	*okate*
3. body		*bata*	*suwe*			*nabufoga*	
4. forehead	*ajape*	*tiri*	*wea*	*ape:*	*ini*	*na'se:ni*	*'roɣovisati*
5. eye	*-au*	*a:bu*	*u:ra*	*oka:*	*afu*	*no'buruga*	*ru'mu'*
6. nose	*-tsi*	*ai'i*	*-tsi'a*	*-ti:'i*	*aiki*	*no'gona*	*no'ɣoruɣa*
7. ear	*-ta'tari*	*ato*	*-tsa'a*	*aka:*	*a'o*	*na'gesa*	*'rekesa*
8. mouth	*-o:*	*no:*	*soi'a*	*-o:*	*o:*	*nagika*	*ni'kofati*
9. throat	*-me*	*-mta*	*mo:sau*	*mɛɛni*		*ne'nayke*	*rumahati*
10. neck (nape)	*-otu*	*ba:ntari*	*nugwara*	*wain*		*nagetu*	*inupati*
11. lip	*wa*	*ma'uru*	*tso:winjen*	*wo:ni*	*pauru*	*nagi'morena*	*ramaɣa*
12. tooth	*b(i)antu*	*a:rai*	*'tsuwea*		*-fai*	*neve'*	*ramaɣairo-oti*
13. tongue	*mapi*	*ma'iri*	*na'afinjen*	*a:'pini*	*ma:kiri*	*negefu'na*	*teretufati*
14. shoulder	*-pu*	*kururu*	*djuoin*	*-pu*	*kumu*	*nezo'na*	*orisate*
15. chest	*-ko*	*mimira*	*ku'fa:fai*	*mukunu*	*murusa*	*nemimija*	*'lo'visa*
16. breast	*-na:ni*	*na:ma*	*na:m*	*name*	*nama*	*ami*	*amihati*
17. belly	*-ra*	*'arara*	*tsimu'a*	*ara(p)i*	*muau*	*nerimpa*	*ipati*
18. blood	*-nare*	*'nare*	*na'ime*	*uwoi*	*fidika*	*kora*	*korahi*
19. fat	*-aino*	*'ka:ntabu*	*-nun*	*no:ne*	*fa'damena*	*nehe'fova*	*sinuhati*
20. lower arm	*bayka, bonema*	*atabare*	*'dja:napa*	*ta:ndja*			*roiferisati*
21. upper arm	*danajamba*	*'ka:ba'u*		*ja:ŋkanamai*	*sauku*	*tokorote'a*	*fujati*
22. hand	*-ja*	*wu'a*	*'dja:navi'a*	*janakume*	*umu*	*nalagusa*	*re'ahi'*
23. thigh	*ruka*	*abuntara*	*ru'ani*	*ku'e*	*fundona*	*namo'*	*ruti*
24. knee	*-ro*	*-tori*	*ra:ŋgwa*	*ko:ne*	*ori*	*narena*	*loupati*
25. lower leg	*-bedja*	*-beha*	*ue:ta*	*wi'ja*	*fe:dama*	*nedzia*	*laki'sa*
26. foot	*ranta*	*ai'u*	*tsi'sa*	*kane*	*aikwa'umu*	*nagame-rumpa*	*riusati*
27. buttocks		*na'a*	*je'n*	*rie*			*siti*

VOCABULARIES. (1) KAINANTU AND EASTERN BENABENA GROUPS—*Continued*

English	Agárabi	Taiora	Forei	Gadsup	Binumarian	Kamano	Hófaga
28. bone	*aijampa*	*uhari*	*ja'a:ta*	*ajampai*		*neferina*	*ferisa'a*
29. soul (living)	*kobi*	*ba:na*	*wa:tani*	*ku*	*-mana*	*nemena*	*leovopa*
30. ghost	*ba*	*uti*	*mupuinbeni*	*ama*	*fana*	*'haŋkoro*	*fere*
31. sun	*a'o*	*gua:ri*	*apo*	*waja*	*'suana*	*ze'ge*	*djege*
32. moon	*bijo*	*to:ra*	*wijo:*	*nura*	*u'o:na*	*ika*	*ikahi*
33. star	(*ofu*)	*makau*	*u'a*	*wajo*	*fasau*	*ha'nafi*	*sonofi'i*
34. sky	*opu*	*'na:ruva*	*wijo:*	*inaru*	*inaru*	*mona*	*okuruma'i*
35. night	*'inura*	*'ɛ:ntiro*	*pe'na:-djimeti*	*ajukwame*	*ean'damita*	*'kenege*	
36. day	*a:kura* (morning)			*'wajame*	*kanana:n*	*fera*	
37. fire	*ira*	*iha*	*izama*	*ikai*	*i:da'i*	*tebe*	*ro'go*
38. rain	*a*	*a'u*	*a'a*	*a'e*	*a:ku*	*ko'*	*ko'i*
39. ground	*bara*	*vata*	*marama*	*makai*	*ma'a* (also "house")	*mofoa*	*me'i*
40. earthquake	*baruni:a*	*'vatura*	*marime*	*makune*		*imi*	
41. bush, jungle	*u*	*nanta*	*u:mi*	*wu'e*	*nandaki*	*te'rampiŋga*	*ja'faruga*
42. village	*ma*	*'batuga*	*maruka'a*	*makuta'e*	*ma''usa*	*kuma*	*ka'hupaka*
43. water	*no(mi)*	*na'mari*	*no:*	*no:me*	*namari*	*ti*	*'nami'i*
44. river	(*no(mi)*)	*namari tuviviro*	*no:mpa kumije*	*no:me kumeine*		*ti ru*	
45. mountain	*anujo*	*no:ra*	*ora'a*	*aka'e*	*a'ana*	*kona*	*gosa*
46. valley		*u'iteganta*	*arupa'a*	*nokune*	*apa:sa*	*o'gupo*	*ge'muja*
47. stone	*o*	*o:ri*	*o:nta*	*o:ne*	*o:ni*	*have*	*efahi*
48. path	*a(sa)*	*a:ra*	*a:(mpani)*	*ane*	*danda*	*kuna*	*kapo*
49. tree	*da*	*ga'ta:ri*	*ta:i*	*jane*	*sa''ari*	*zafa*	*ja'fa*
50. leaf	*ainojarija*	*ga'ta:ri mare*	*tai na*	*ja janai*	*sa'ari 'mani*	*zafa nina*	*ja'fa ahaia*
51. fruit		*ga'ta:ri taba*	*tai ira*	*ja jamake*		*zaf' 'araga*	
52. man (native)	*banta*	*bainti (nora)*	*va'azi*	*wa:nte*	*fa'i*	*vehe*	*bo*

VOCABULARIES. (1) KAINANTU AND EASTERN BENABENA GROUPS—*Continued*

English	Agárabi	Taiora	Forei	Gadsup	Binumarian	Kamano	Hófaga
53. woman (native)	*anasi*	*na'henti*	*a:ri*	*anati*	*anasi*	*a'nene*	*a'i*
54. boy	*ijampo*	*bainti*	*ijampo*	*ami*	*ana'i fa'i*	*mofa vere*	*pana'i*
55. girl	*arinta*	*na'henti bainti*	*na:maru*	*akinte*	*mana'anasi*	*osesi' mofa*	*ɣasoɣasi* *pa'i* *ɣasoɣasi*
56. father ..	*po'e*	*-ora*	*-po*	*-poe*	*-kofe*	*na'fa*	*afo'nifo*
57. mother ..	*noi*	*-nora*	*-no*	*-noe*	*-nofa*	*aniako*	*gito'nifo*
58. son	*ka*	*-bainti*	*-ra'a*	*-ka'e*	*-konai*	*mofa vereni'a*	
59. daughter ..		*-ra:bura*	*-ja:mu*	*-ramu*	*mana'a*	*osesi' mofa'nia*	
60. elder brother	*ba'ai*	*-ba'gava*	*-uwa*	*-wa*	*-pa'sapa*	*nemupusu*	*noɣo'nifo*
61. younger brother	*ba*	*-diaura*	*-u:*	*-pae*	*-naufa*	*naganaso*	*noɣona'ni*
62. man's sister ..	*(-afi)*	*na'henti* (" woman ")	*-ŋwe*	*-opi*	*-na'a*	*nagana'nimo*	*netari'nifo*
63. wife	*(-pa)*	*nata*	*wa:nji*	*-na'e*	*inina'a*	*are*	
64. husband ..	*(-wapu)*	*ba:ti*	*wai' 'a*	*-wapu*	*-sia'u*	*'nenabe*	
65. father's father		*naura*	*namwa*	*-napu*		*nageho*	
66. name ..	*-bi*	*hutu*	*-wi'a*	*wie*	*-iena*	*ne'gi('a)*	*nigi'ni*
67. language ..	*sesiwaija*	*uba*	*a:njwe*	*a:ne*		*ke*	*arigakati*
68. house	*ma*	*nabu*	*ma'a*	*ma'e*		*no*	*nohi*
69. clothing (native)		*rabara'e:ra*	*apanta*	*wa'e*		*kena*	*'fovihi*
70. net bag ..	*una*	*uta*	*kuna*	*urame*		*ku'*	*u'i*
71. girdle	*amu'ane*	*ba'a*	*wato:nj*	*pikapai*		*'kafina*	
72. food	*juna*	*gara* (" taro ")	*kisauŋ*			*ne'dza*	*narinena*
73. meat		*'sarare*	*'sarare*			*me'a*	
74. pig	*po:*	*uara*	*po:nj*	*po:ne*	*koara*	*afu'*	*djaka*
75. bird	*urara*	*antau*	*wa:*	*nume*		*namai'*	*na'ma*
76. taro	*jena'*	*gara*	*maja:*	*jamme*	*sana*	*'neraga*	*ama*

VOCABULARIES. (1) KAINANTU AND EASTERN BENABENA GROUPS—*Continued*

VOCABULARIES. (1) KAINANTU AND EASTERN BENABENA GROUPS—*Continued*

English	Agárabi	Taiora	Forei	Gadsup	Binumarian	Kamano	Hófaga
77. yam	*o:ba*	*ba:ra*	*tamba*	*owai*	*nandi*	*avi*	*avi*
78. sweet potato	*jakuŋ*	*ama*	*kisa*	*kamai*	*kama*	*jagu*	*meja*
79. banana	*ami, (a:)*	*eita*	*pa:'a*	*e'e*	*e'a*	*kani*	*igofa*
80. corn (native)	*'antiviri*	*'antivi*		*taŋkome*	*saŋguma*	*ntibi, kire*	*kire'i*
81. cassowary	*tjiŋku*	*buke:re*	*auwa:n*	*wu'jeme*	*fuse:na*	*manani*	*gi'jedifa*
82. pigeon	*urara*	*memo:ra*	*ebota*	*naŋkipurum*	*nakipuruma*	*tumpa*	
83. arrow	*uwi*	*beiba*	*sovija:n*	*we*		*kebe*	*mage'e*
84. bow	*isena*	*huru*	*in*	*itan'dai*		*ati'*	*gibi*
85. bowstring	*itna*	*hinta*	*apinj*	*i'name*		*kari*	*menehi*
86. axe	*'tasume*	*'hahume*	*ku*	*tatume*		*sasume*	*ruhi*
87. knife	*sope*	*ihai*	*fi*			*kedji*	
88. digging stick		*ga'uru*	*tau*	*nojame*		*a'zohano*	*ebuhi*
89. dog	*ija*	*bairi*	*ja*	*ijame*		*kə'ra'*	*kə'ra*
90. bird of paradise		*tabuara*	*kou*	*kawome*	*a'dasa*	*hagu*	
91. big	*kaka*	*no:ra*	*ura'a*	*jena*	*fi'rasa*	*rusi'a*	*sipi*
92. small	*sito*	*inara*	*jata'a*	*tito'e*	*kaiana*	*onima, osi*	*neγasoaγaso*
93. long	*ada'ada*	*bugai*	*jata'a*	*ija'e, ja'ane*	*kusa'a*	*ja'nara, jaja*	*jatavana*
94. short	*'asika*	*i'u*	*ampa:*	*waka'i*	*noo*	*tupa*	*u'pasiso*
95. dead	*puria*	*utu(viro)*	*pukai*	*puweme*	*kuino*	*feri'ne*	*firi'ei*
96. good	*aboru*	*ko'emiru*	*kau'wei'ei*	*awoko'e*	*amira(pa)*	*kanare'*	*matiuto, hetofana*
97. bad	*namuke*	*ora'iru*	*tsavi'anurai*	*mandaukane*	*mandai-kira(pa)*	*hevizana*	*noγavehe*
98. black		*ko:nkira*	*paputa*	*ajupume*	*tundu'-aridama*	*haniŋke*	*nupa'na*
99. white		*e'ara*	*wai*	*kaponarime*	*e:kara*	*efeke*	*gizopana*
100. red		*nare*	*naime*	*uwo:manai*	*tatu'e*	*koraŋke*	*zafa'na*
101. blind		*abu im'-pabire*	*auga bita*	*okame puntiweme*		*avesuhu'ne*	*'mufrika nama*
102. deaf		*ato tin'-tabiro*	*a apaikor-aijo*	*aka ujai-keme*		*nagesa narire*	*ekesa heka-riraramo*

VOCABULARIES. (1) KAINANTU AND EASTERN BENABENA GROUPS—*Continued*

English	Agárabi	Taiora	Forei	Gadsup	Binumarian	Kamano	Hófaga
103. stand	*manta*	*impwa*	*sau'ane*		*findifa*	*otiue*	*hoti'e*
104. sit	*kumana*	*o'ubwa*	*mara'-ambene*		*o'umari*	*meni'noe*	*metorohi*
105. talk	*bajasia*	*turavo*	*sunani*		*ofai, inami*	*miue*	*kanori*
106. call		*arau*	*nantauane*	*a:ra*	*a:ra*	*kezati miue*	
107. run	*nonarabija*	*kantarere*	*suata*			*korewue*	*hororutovi*
108. go !	*oro*	*viro*	*we'o*	*wake'o*	*fua ! (fida)*	*vuo*	*buvo*
109. come	*ere*	*vaitana*			*ani-*	*eno ! neue*	*ovo*
110. bring ..	*bari ere*	*varani*	*ma:bate*	*mara dje*	*mare ani*	*eriue*	*itovo*
111. take away ..	*bari ore*	*varebue*	*ma:jewai*	*mare fua*	*mare fua*	*nebue*	*ritovivo*
112. give	*sime*	*arimami*	*nejen'-banamu*		*imi*	*minue*	
113. hit		*utu*	*batufune'e*	*are'o*	*ari-*	*heue*	
114. see	*one*	*tabe*	*'ana-*	*wone'o*	*afe'a*	*negoe, ge'noe*	*vugo'o*
115. hear	*inija*	*iri*	*sau*	*tainde'o*	*iri*		*here'o*
116. sing	*i'da*	*hitirere*	*sene*				*navariru*
117. cry	*ifi'je*	*i'iratarere*	*ipi'antane'e*				*ivinohu*
118. steal ..	*umoja*	*muaravara*	*membenona'i*			*musufa erinue*	*kuvidaho'o*
119. eat	*unta'ja*	*na-*	*na-*	*na-*	*narenana*	*neue*	*utu novo*
120. drink ..	*nona*				*narera*		*nuɣabi novo*

NOTES

In the Agárabi column, words bracketed are taken from Chinnery's first account of this area, *Man*, 1934, No. 140. This word list seems to be accurate, but represents a slightly different dialect from that here given, and rather farther to the north-west. In all columns, hyphens indicate that the words are incomplete as they stand ; in the case of nouns, a prefixed possessive may be required ; in the case of verbs, a suffix of person, tense, etc. It may well be that in columns 2, 3, 4 and 5 a suffix is given as part of the word root, for very little is yet clearly known concerning the structure of the verbal systems in these languages. In the Kamano column, nouns which take prefixed possessives are usually given with that of the first person singular added. Here and in Hófaga, most of the verbs are given in the first singular. Agreements between Gadsup and Agárabi are noticeable in a considerable number of words, and with these Taiora often connects. Occasionally Kamano fits into the same group, but Hófaga rarely. No. 16 is found also in Kàte, but for that matter a form of it is also found in north Australia, so that it is dangerous to argue from it. The material is not extensive enough to decide whether there are definite sound-laws as between the languages. It seems probable that there are, and occasionally an unusual consonant change is found, as for instance a change of *k* to *r* as between Gadsup and Agárabi (see Nos. 37 and 39). In a few instances there is agreement through all or almost all the languages, e.g. No. 43, where only Kamano does not have the same root as the others. Further study will be called for along these lines as the material comes to hand.

from those of the Huon Peninsula, the Benabena group. By way of contrast again may be added the pronouns of the Mumeng dialect taken:

Singular ..	..	1. *a'hai*	2. *uwe*
Plural ..	..	1. *ɣato.*	

Though fragmentary only, they show totally different forms. In the Kainantu group, Binumarian stands farthest apart from the general forms. The indication of the dual number by a suffix is common, and this suffix is a form of the local numeral "two," cf.

	Dual Ending.	"Two."
Agárabi	*-kana*	*kaykana*
Taiora	*-tanta*	*tara'anta*
Gadsup	*-tanda*	*kantana*
Binumarian	*-'era*	*a:ra*

These correspondences are fairly close, even in word—except for Binumarian, and here the principle is still the same. The Binumarian pronouns also stand rather apart.

The prefixing of possessives is characteristic of this group. It is found in Kamano, but only in certain cases. Especially peculiar is the use of the same prefix for all numbers, parallel to the use of the same suffix to each person of the verb in all numbers.

Specimen vocabularies of the Kainantu and eastern part of the Benabena groups follow here, so that comparisons may be made. Footnotes explanatory of individual words are given at the end of the vocabularies.

For comparison towards the south-east the following vocabulary is given. It may be called "Mumeng," as the locality is not exactly known. The informant was interviewed at Lae native prison, spoke very little pidgin, and could not be located more definitely than as belonging to the Mumeng district. The language is obviously non-Austronesian, and the grammatical structure appears from sentences which are not reproduced here, to be fairly simple, and quite different from the Kâte type. This vocabulary will serve to show that the Kainantu group of languages has no connections in this region.

head	*bandju*	bush	*umupe*
hair	*bandju boŋko*	water	*num*
eye	*maŋaro*	road	*kale*
nose	*naro*	tree	*a:k*
ear	*nenjale*	leaf	*a:k ŋgo*
mouth	*mja*	man	*ma:(jə)*
lip	*ne'vi*	woman	*va:(jə)*
tongue	*gaijo*	boy	*nopo*
shoulder	*kandeja*	girl	*va nopo*
belly	*ja:je*	name	*njile*

sound-laws as between the languages. It seems probable that there are, and occasionally an unusual consonant change is found, as for instance a change of *k* to *ɾ* as between Gadsup and Agárabi (see Nos. 37 and 39). In a few instances there is agreement through all or almost all the languages, e.g. No. 43, where only Kamano does not have the same root as the others. Further study will be called for along these lines as the material comes to hand.

blood	*jo*	clothing	*mbaimba*
hand	*veŋgi pə'ta*	house	*oma*
foot	*vaɣa pə'ta*	food	*wa(i)*
leg	*vaɣa 'le*	taro	*njaŋe*
thigh	*vaɣa pumba*	sweet potato	*kolowa*
sun	*'adjube*	banana	*joŋ*
moon	*daintuk*	dog	*na:(jə)*
star	*pətoa*	bird	*depa*
rain	*naruk*	fish	*impis*
snake	*mi:le*	bow	*vale*
good	*ne'va*	arrow	*nōe*
bad	*nepan*	big	*levanambu*
black	*velija*	small	*'nopupo*
white	*(ne)kwem*	red	*miamia*
stand	*lokatu-*	stop, stay	*ndue-*
sit	*tundu-*	look at	*gi-*
go	*lak-*	talk	*nji-*
come	*la-*	hear	*ŋo-*
take	*hum*	cry, weep	*iŋ-*
bring	*hum la-*	eat	*ɣai-*
give	*wo-*	drink	*mia-*

Between these words and those of the Kainantu area there is very little overlap. It is now possible to pass on to a comparison of the Benabena languages.

The Benabena group presents a grammatical structure uniform throughout and closely comparable with that of the Kâte group, although the forms are frequently different. In nouns, for instance, the agentive case is found in both groups, and in general the case systems are similar. A table of these has been given in the first part of this paper (*op. cit.*, p. 121) and need not be repeated here. The distinction in Gafuku and Asaro between agent and instrument is interesting and unusual. It will be seen that in actual suffixes a break occurs between Kamano and Gafuku, and neither has any formal resemblance to Kâte. West of the Benabena group again this elaborate declensional system breaks down entirely; there is no agentive form in the Kainantu group, and postpositions with recognizable independent meanings are found in place of case endings. In some of the Kainantu languages case endings are found. Frequently, though not exclusively, the genitive in the Kainantu group is shown by simple juxtaposition. Examples were given in Part I. In Kâte such a juxtaposed form is only a descriptive genitive, not a possessive. In Taiora, however, it is a true possessive. In Forei, *ma* is "house": *miventa na'umpaŋku karuvenanta*, he comes from the house; *miventa na'umpaŋku rai*,

he goes to the house, shows a similar lack of case-ending, the sense depending on the context, as against the corresponding Taiora, where *nabu* is " house " : *biba nabu ime viro*, and *biba nabu ihairo beipa aniro*, respectively. Further Taiora, *nabu'i*, in the house, *hahume vari*, with an axe. In Agárabi, where *ma* again is " house " : *tentiwaeka maifi bai'imi*, my two brothers are staying in the house, but another example shows *mainamo bai'imi*, staying in the house. Postpositions following a genitive case-ending are also found in Agárabi : *ma'na aupa*, inside the house. Pronouns also take the case endings, and are shortened in the process : *tentiba'i tema orinte*, my brother will go with-me. So in Gadsup : *nurame makuta pa owake'o*, yesterday village to (he) went ; *tatum-anda ompo ake'da*, I cut it with an axe. Binumarian shows, e.g., *sa'a-munai aridara fa'i*, with a-stick I-hit the man, from *sa'ari*, stick.

In the second group of vocabularies are given those of the Garoka Valley. Kamano and Hófaga stand closer to these than to the Kainantu group, but have been included with the latter because Kamano in particular links up to some extent with the east. The languages of the Garoka Valley are more closely connected with each other than those farther east. The nouns in the following vocabulary which carry prefixed or suffixed possessives are given with those of the first person singular, and allowance must be made for this in comparing the lists. In many instances identical roots are found throughout the languages compared, e.g. Nos. 17, 21 (though Kofena is perhaps not so linked in this case), 31, 32 ; in others only one language departs from the group word, e.g. Nos. 33, 57, 61. Certain rules of sound-change are present, e.g. a *j* in Jabijufa, Jamafi and Kofena answers to a *dz* in Gafuku and Asaro (No. 46, 39) ; the medial velar fricative (γ) of Gafuku is omitted from most of the other languages (No. 3, 5), Gafuku *k* may vanish (No. 18, 45) but is kept medially (No. 34). There is interchange of *r* and *d* (No. 35), *l* and *r* (No. 3) with a tendency to loss of both as initials in Asaro ; Gafuku *h-* becomes *f-* in Asaro and is lost in Jabijufa (No. 23). Other sound changes could no doubt be traced with larger vocabularies. It would seem as though Gafuku retains original sounds best.

These vocabularies were taken on a basis different from those of either the Kainantu group or the western group, and consequently some of the words that ought to appear in the Jamafi and Kofena lists are not given. The numbering, however, has been made consecutive in this list. Enough, however, is given to suggest the proportions of agreements and disagreements between the various languages included. Of agreements with the Kainantu group there is practically nothing : the two groups stand as far apart in vocabulary as they do in grammar. The previous part of the paper has shown that while the Hamano-Hófaga languages are similar in structure to those of the Garoka Valley, there is not so close an agreement in actual forms. The following are the vocabularies.

VOCABULARIES. (2) GAROKA DISTRICT

English	Gafuku	Asaro	Jabijufa	Jamafi	Kofena
1. head ..	*otote*	*otote*	*latate*	*manuŋga*	*mantut*
2. hair ..	*jo'porate*	*jo'porate*	*jo'pate*	*jowara*	*atai'náropo*
3. body ..	*luɣupe*	*ukante*	*rupate*	*ukwaŋga*	*uko'no*
4. forehead	*gorihite*	*orofite*	*etipate*		*orihi'na*
5. eye ..	*loɣomura*	*vete*	*lomuda*	*'omunga*	*ve'ino*
6. nose ..	*loɣoka*	*ote*	*lokepa*	*koka*	*o'ino*
7. ear ..	*laɣata*	*kate*	*lata*	*kaka*	*ka'no*
8. mouth	*agika*	*veteruru*	*leparura*	*veka*	*ve'no*
9. throat	*ruvate*	*ruvante*	*enote*		*duvo'no*
10. neck ..	*letete*	*rentete*	*ninumate*		*dede'no*
11. lip ..	*degepa*	*vete mono-pova*	*lepate*		*ve'no monopo*
12. tooth ..	*te' pairisa*	*vete amudja*	*ro'davate*	*rekamwa*	*ve'ná mudja*
13. tongue	*jenedate*	*vete nahuna*	*reporuma*		*ve'no gurumi*
14. shoulder	*rigi'na*	*atapate*	*a'tanate*		*a'ná mudja*
15. chest	*roroɣ'musá*	*rosopate*	*ohu'mate*		*muri'ni*
16. breast..	*amite*	*aminte*	*amidate*		*ami'no*
17. belly ..	*morute*	*morute*	*morute*	*sebe*	*moro'no*
18. blood ..	*kórani*	*vanisa*	*'orada*	*vani*	*vaniso*
19. fat ..	*kavoza*	*avoza*	*avora*		*kavodjo*
20. lower arm	*ropa, ohovate*	*ro'pe ohovate*	*hopa ohorovate*		*a'no goɣova*
21. upper arm	*ohovate*	*ohovate*	*ohovate*		*a'no*
22. hand ..	*gigizane*	*ante*	*lade*	*oŋgamwa*	*a'no gara*
23. thigh ..	*humaite*	*fumaite*	*uhate*		*dje'nama'ero*
24. knee ..	*o'uvate*	*opuvate*	*ribura*		*omumbo*
25. leg ..	*ha amunute*	*hamunate*	*rimidavate*		*dje'na'ero*
26. foot ..	*nigiza*	*gizate*	*lite*	*kiaŋga*	*gija'ndmudja*
27. buttocks	*asinute*	*sere*	*esete*		*sénina*
28. bone ..	*herisate*	*amudzate*	*abuhávate*	*amwaka*	*notorova*
29. soul ..	*tjirivate*	*sirivate*	*tjirivate*	*oŋgwa*	*muri'no*
30. ghost ..	*horosi*	*horosa*	*oroha*	*korova*	*hotoso*
31. sun ..	*ho:*	*fo'i*	*ho:*	*fo:*	*ho'mai*
32. moon	*ikani*	*ike'na*	*ukada*	*ikana*	*ge'na*
33. star ..	*sonohi*	*sonohi*	*sonohi*	*rondona*	*sonohi*
34. sky ..	*okuruma*	*okuruma*	*okuruma*	*kokuruma*	*okuruma*
35. cloud	*rimu'si*	*rimusá*	*rimu'*		*dimusi*
36. fire ..	*ro'*	*ro'*	*dzo'*	*jo*	*ro'*
37. rain	*gorini*	*orinά*	*go:*		*gorini*
38. ground	*mikasi*	*mekésupa*	*mika*	*mika*	*mikesumbo*
39. bush	*zauka*	*zauka*	*jauka*		*zauka*
40. village	*aino'numa*	*ámpaka*	*ánuka*		*numuna* (house)
41. water	*naɣami*	*nosa*	*no*	*no*	*noso*

VOCABULARIES. (2) GAROKA DISTRICT—*Continued*

English	Gafuku	Asaro	Jabijufa	Jamafi	Kofena
42. mountain	*ɑɣoka*	*gora*	*véufa*	*mowa*	*gora*
43. valley	*gi'muza*	*gipmidja*	*homotuda*		*oro'*
44. stone	*gehani*	*gefena*	*ihata*		*gefena*
45. path	*kapo*	*a:ka*	*anu*	*kani*	*aka*
46. tree ..	*dza*	*dza*	*ja*	*ja*	*ja*
47. leaf ..	*dza gira*	*abida*	*ja ira*		*ja viro*
48. man ..	*ve*	*ve*	*ve*	*ve*	
49. woman	*vena*	*vena*	*mena*	*nomiri*	
50. boy ..	*teipakoma*		*orumo rasorasi*	*nomiripa*	
51. girl ..	*mohokoma*	*arukoma*	*o'rudasora*	*momiri*	
52. father	*ame'neho*	*me'neho*	*ahone*	*vano*	
53. mother	*djo'neho*	*idje'naho*	*done*	*mojo*	
54. brother (elder)	*uwo'neho*	*uwo'neho*	*jane*		
55. brother (y'nger)	*nugune'na*	*akuna'ne*	*unane*	*makapa*	
56. sister (man's)	*moho'nuga'ne*	*arune*	*orune*		
57. name	*nugurida*	*gurine*	*ri*	*kamuɣúrika*	*uréheve*
58. language	*ako*	*kamozate*	*gate*		*reresaɣamoze*
59. house	*numuni*	*numuna*	*numuda*	*nomuna*	*numuna*
60. clothing	*homini*	*fomina*	*homida*	*monambi*	*homina*
61. net bag	*go'*	*go'*	*ova*		
62. food ..	*nosánita*	*nosa'neta*	*nodenisate*	*mogena*	*ovi*
63. pig ..	*iza*	*idja*	*dja*	*jabo*	*idje*
64. bird	*nama*	*nama*	*nama*	*kua*	*nama*
65. taro	*masi*	*masa*	*ina*	*maho*	*masi*
66. yam ..	*asi*	*asa*	*va*	*ka*	*ɣasa*
67. sweet potato	*goive*	*gonuma*	*opa*		*govi*
68. banana	*gizasi*	*gidesa*	*(u)ve*	*gije*	*gijaso*
69. corn ..	*kire*	*uru'kurisa*	*kire*		*tauta*
70. cassowary	*oroni*	*oroina*	*oroda*	*orona*	*oraino*
71. arrow	*mage*	*eresa*	*ile*	*ide*	*eraso*
72. bowstring	*me'noni*	*me'nona*	*'maunda*		*menin*
73. bow	*gimisi*	*timisa*	*gimi*		*gimiso*
74. axe ..	*runi*	*reŋko*	*roda*		*runu*
75. knife..				*emi*	
76. digging-stick	*amuta*	*amuta*	*amuda*		
77. dog ..	*kara*	*gura*	*ura*	*ku'ra*	*guro*

VOCABULARIES. (2) GAROKA DISTRICT—*Continued*

English	Gafuku	Asaro	Jabijufa	Jamafi	Kofena
78. big ..	*napa*	*nampa*	*napa*	*namba*	
79. little	*netakoma*	*neta'goma*	*sainilasora*	*'kefora*	
80. long ..	*ha'na*	*ha'na*	*hana*	*fana*	
81. short	*a'ri'niba*	*a'ri'niba*	*minavasi*		
82. dead	*hereka*	*fereka*	*herekai*	*forei*	
83. good	*ramana*	*ramina*	*dzanisasa*	*doro*	
84. bad ..	*oresa*	*orosa*	*nosami*	*nosamie*	
85. black	*anupa*	*onompu*	*lubu'hanesa*	*rumu*	
86. white	*mokuna*	*gizoba*[7]	*joponesa*[7]	*kiomba*	
87. red ..	*gorohe*	*urahe*	*ra'honesa*	*rafa*	
88. blind	*au'mari-kama*	*verarika-kakvi*	*undadi-kaibo*	*omnarikami*	
89. deaf ..	*ɑɣatamoroka*	*raramoroka*	*ataherimokai*		
90. stand	*otune*	*oteno*	*tjinone*	*di'tonune*	
91. sit ..	*mikasikoi'no*	*mito'no*		*minendŋ-gore*	
92. talk	*kakorokane*	*rokano*	*garukadji*		
93. run ..	*ororurokovi*	*orurokovi*		*onuratone*	
94. go ! ..	*wodzo*	*woozo*	*wo*	*wo*	
95. come !	*ano*	*ano*	*ano*	*enaŋgore*	
96. bring	*arekano*	*tokano*	*lekano*		
97. take ..	*arekuwodzo*	*tokowodzo*	*erekuwo*		
98. see ..	*a'nigono*	*niŋkeno*	*mudaminoe*		
99. hear ..	*gereno*	*gireno*	*ereminoe*		
100. sing	*namarito*	*namaroku*	*namaretije*		
101. cry ..	*ibiaku*	*vezaku*	*vidjemana-moro*	*rufione*	
102. steal	*guminaku*	*guminaku*	*ukerenoe*		
103. eat ..	*woko nozo*	*nozo*	*woko no*	*nowe*	
104. drink	*na gni'*	*nozo nosa*	*nozo numa no*	*nenai*	

[7] Mistakenly given ; it means white cockatoo, and Gaf. *gizopa*, Hófaga *gizopana* correspond to it. No Kofena adjectives taken.

The next group of languages to be encountered as the traveller moves westward is that of the Chimbu. Here again a natural division is found in the shape of a mountain range, and the languages to the west of that range are noticeably different again in grammatical type. This has been demonstrated already, along with the fact that they present considerable homogeneity amongst themselves. This similarity will appear again in the following vocabularies. Gende is the member of the group that stands farthest apart, and it is not yet possible to state what its affinities are, because the surrounding languages are unexplored. Even Gende,

however, shares the chief grammatical features of the Chimbu languages, although the actual words are often different. In some instances it is possible to find rules of sound-change as between the Chimbu group and Gende. For instance, a final *-gl* in Kuman becomes *-ri* in Gende, as in Kuman *kindagl*, Gende *kindari*, old, grey. To say "becomes" is hardly correct, for so far it is not possible to state which form is historically prior. Between both of these (or sometimes only one of them) and the Wahgi-Hagen group there is frequent agreement also, and the following comparisons will show some of these ; others will be read off at a glance from the vocabularies.

English	Kuman	Gende	Hagen
go !	*po !*	*vo !*	*va !*
snake ..	*togoi*	*tomoi*	
red	*gogl*	*goro*	
grey, old ..	*kindagl*	*kindari*	
pig	*bogla*	*poi*	
nose	*guma*	*komu*	*guimp*
a bow ..	*kimbre*	*kimi*	
arrow	*jere*	(*bere*)	*eL*
back (n.) ..	*mogo-na*	*migi-nja*	
blood ..		*mamia*	*mem*
bone	*jombugl*	(*jamia*)	*ombeL*
brother ..	*aŋgra*	*aiane*	*aija*
I cut	*bo-xka*	*bi-u*	*kop tjintj*
water ..	*nigl*	*nogoi*	*nu*
ear	*kina-*	*ka-*	*kum*
eat	*nei-ŋga*	*n-ai*	*nontj*
egg	*muglo*		*muL*
I fear ..	*kundux pirika*	*kori* (*ku'ru*)	
woman ..	*ambai*		*aimbi*
flesh	*mie*	(*mitsa*)	*mintj*
food	*mogena*	*mogonja*	(*røŋ*)
I see	*kan-iŋga*	*kwa*	*ka-ntj*
sun	*ande*		*antj*
taro	*me*	*mai*	*me*
tree	*ende*	*idjo*	*de*
I walk ..	*wani-ŋga*	*wana-i*	
white ..	*kruwo*	*kuruwa*	*kurumuL*
yam	*kom*	*kambai*	
I	*na*	*na*	*na*
he, they ..	*je*	*jai*	

There are other possible comparisons, the above is only a brief sample. Thus, Hagen *oLa*, up, above, seems to compare well with Kuman *oglo touŋgwa*, he jumps. The list in general suggests that Gende preserves as a rule the prior forms, or is closer

English	Gende	Tjuave	Kuman	Sinasina	Sua	Dom	Boumai
1. above	*keme(kura)*	*munume*	*mitna*	*teme*		*miliave*	*miniabe*
2. angry ..	*rauai*		*dem kúm-brukwa*	*dena kubu-ruŋgwa*		*dene kubu-rumue*	*dena kubu-rumue*
3. ant	*geŋki*	*kigau*	*kauL*	*gogin*		*kiune*	*sohine*
4. arrow ..	*kimi kubwidja*	*ei*	*jere (-kimbre)*	*el̲*	*ei*	*simul el*	*simul el*
5. ashes	*werona*	*kuráɣandi-ŋgwa*	*juŋgum*	*unŋe*	*eri mugu*	*ugul*	*ha:l*
6. back (n.) ..	*migi-nja*	*mono*	*mogo-na*	*eriawo*	*manoŋgwijo*	*mune*	*muna*
7. bad	*mbriki*	*nigindo-ŋgwa*	*kinde*	*nigidoŋwa*		*ki*	*ki*
8. bamboo ..	*uvoka*		*meŋgaL, wai*	*mugale*		*meŋgaL*	*be:*
9. banana ..	*küje ununo ?*	*kame*	*ka:mbe*	*ka:me*	*ɣaimi*	*ka:m*	*habe*
10. bird	*nakai*	*gavaga*	*kua*	*kavakava*	*kapu*	*kabnakova*	*hawuwa*
11. black	*gaminaŋga*	*kama*	*ka:ma*	*kama*		*ka:ma*	*ha:ma*
12. blood	*mamia*	*agi*	*boromai, majam*	*majam*	*dijo*	*meam*	*meandj*
13. body	*-ugéraka*	*gano-*	*aŋgie*	*ŋgane*	*gano*	*ŋgadne*	*ŋgainain*
14. bone	*jamia*	*jiba:gon*	*jómbu-ra*	*jóbila:ga*	*jobiago*	*jóvela*	*jóvela*
15. bow	*kini*		*kímbiri*	*kimil̲*	*kimi*	*simul*	*simul*
16. bowstring ..	*muke*		*kímbiri jiruane*	*kimil̲ eluan*	*kimi era*	*eruane*	*eruane*
17. bowels	*mune*	*dera midna*	*dena*	*dena*	*de-no*	*de-ne*	*de-na*
18. breast	*ami*		*amu-na*	*ámuna*	*ami-no*	*ame-ne*	*ame-na*
19. brother.. ..	*aiane*	*emna-m*	*áŋgera*	*ágela*		*a:la*	*aŋa*
20. I burn ..	*kia*	*konaijo*	*gaxka*	*gaŋwa*		*gal̲o*	*gaŋo*
21. butterfly ..		*dereŋgure*	*kuime kaime*	*urukova*		*kuime gaime*	*kuime haime*
22. cassowary ..	*oroina*	*kavobi*	*ni:me*	*ovokovija*	*oinime*	*evi*	*evi(h)*
23. a chief ..	*venepi*	*ariori*	*jomba ka:nde*	*ovalj o:re*		*ival biL*	*iva bildj*

English	Gende	Tjuave	Kuman	Sinasina	Sua	Dom	Boumai
24. child	*move-ne*	*gan*	*jagn gage*	*jaɪgaɪ*		*jal gakeve*	*kamegi*
25. cold	*dandarangai*	*usiwe uŋgwa*	*iri ŋgoxkwa*	*gwi golja*		*gwi iŋgoka*	*gwi iŋgoka*
26. I cry	*jüvina*	*umboiwiŋga*	*aɪeindiŋga*	*ale duŋwa*		*a'lindiga*	*gaɽan'-dubeŋga*
27. day	*proɪa(ŋ)go*	*foɣaipa*	*eŋge*	*elemɔne*		*'tanan*	*'tana*
28. dog	*mavi*	*kei*	*aɪ*	*alj*	*kei*	*a:ɭ*	*aɭ*
29. I drink ..	*nogo nju*	*ni nega*	*niɪ neiŋga*	*nilj nega*		*kubu 'kariga*	*hībi harumuna*
30. ear	*ka-*	*kina-na*	*kina-na*	*kina-no*	*kina-no*	*kina-ne*	*hira-na*
31. I eat	*nju*	*nega*	*neinga*	*nega*		*ne:ka*	*noguŋga*
32. egg	*tumuraŋgo*	*koru'amwio*	*muɪo*	*mile*		*mile*	*mile*
33. evening ..	*po kono-kravi*	*arom-beŋgwa*	*ande beŋgwa*	*are beŋwa*		*are jam beŋgwa*	*ari abiŋgwa*
34. eye	*vi-ne*	*oŋgumunja*	*oŋgomutna*	*omulno*	*ogondmijo*	*'omulna*	*'omulnain*
35. face	*wena kómuna*	*gianaŋgumo*	*gúmana* (nose)	*eŋgla:na*		*gumane-girane*	*gumane*
36. father	*nomoa*	*afo*	*nina*	*abe*		*abo·*	*habu*
37. I fear ..	*kori kuru*	*kuri pika*	*kunduɪ pirika*	*kurilj piljga*		*kuril pika*	*huril piriga*
38. fire	*tuva*	*eri ndoŋgwa*	*ende ndoŋgwa*	*ere doŋwa*	*eri*	*edn doŋwa*	*ere deri ndoŋgwa*
39. fish	*bure*	*'nikabu*	*buɪo baɪe*	*voile gaile*		*bili mbale*	*biri bari*
40. flesh	*mitsa*	*mijo-*	*mie*	*mie*		*mi:*	*mi:*
41. flower ..	*idjoguwa*	*taiku*	*tara kuie*	*talj golj*	*gorawi*		
42. a fly	*debenja*	*dewin*	*diune*	*du:ne*		*diúin*	*diúin*
43. food	*mogo-*	*kopana*	*mógena*	*kovena*	*no*	*komuna*	*homuna*
44. foot	*giana*	*kau-na*	*kat-na*	*kalj-no*	*hau-no*	*kau-ne*	*hau-nain*
45. fowl	*kumbua*	*korua*	*konduɪwaɪ*	*koarale*		*koruali*	*horari*
46. fruit	*idjodja*	*mugo-*	*moŋgo*	*moge*		*mile*	*mile*

English	Gende	Tjuave	Kuman	Sinasina	Sua	Dom	Boumai
47. girl	*orukevi keŋgwa*	*ama*	*ambai*	*availj gagilj*		*ŋge*	*gi*
48. I give him ..	*emi*	*tega*	*teiŋga*	*na jalj toŋwa*		*teiga*	*tega*
49. I give you ..	*kakumu*	*nane*	*teiŋga*	*teŋa*		*teiga*	*tega*
50. good	*mogeri*	*arimun*	*wagai*	*min*		*wai*	*wai*
51. great	*nambaiju*	*ori*	*kande*	*ore*		*biḷ*	*biḷ*
52. hair (head) ..	*jogura*	*jo-mo*	*jungo*	*jo-me*	*vi-o*	*igo*	*jigin*
53. hand	*jane*	*ogo-nam*	*oŋgo-na*	*ogu-na*	*ogonomu-no*	*o-na*	*o-nain*
54. head	*koina*	*binja*	*bit-na*	*bil-na*	*bi-no*	*bil-na*	*gibra*
55. I hear ..	*kurú*	*pika*	*pi'rika*	*piljŋa*		*kod piljka*	*hod piriga*
56. house	*nom*	*igi*	*jungu*	*jige*	*igi*	*jige*	*ogu*
57. hungry ..	*nagai purú*	*meraŋgo je*	*kindan goxka*	*kraŋgogla*		*kinan goḷ*	*hinaŋ goli*
58. husband ..	*kamu-ne*		*wije*	*wije*		*wi*	*wi*
59. knife	*kobia*	*pwie*	*piɭ*	*puwilj*		*huwuḷ*	*huḷ*
60. I know ..	*na kurú*	*na pika*	*na pi'rika*	*na filjga*		*na piluo*	*na pi'riwe*
61. land, earth ..	*mikai*	*'mangawa*	*magan*	*gaba*	*mansinu*	*gava*	*maiŋgarwa*
62. leaf	*jogo*	*wamun*	*jaundo*	*er'ane*	*eri aro*	*er'ari*	*er' ari*
63. I lie down ..	*mirina*	*paivene*	*paiiŋga*	*faiŋwa*		*paiŋga*	*pabiŋga*
64. I live ..	*wominju*	*kori moija*	*koro moxka*	*kwi moŋa*		*kwi molka*	*kwi múepeŋga*
65. long	*kabeo*		*olto*	*ale*		*aluain*	*aruain*
66. louse	*'tinime*	*niman*	*'niman*	*ni'man*		*ni'man*	*ni'man*
67. man	*vombia*	*ari*	*jomba, jaɭ*	*jalj*		*ivaḷ*	*ivaḷ*
68. moon	*kotsi*	*kapa*	*ba*	*ba*	*kapa*	*ba*	*ba*
69. mother ..	*-iowo*	*mana*	*mana*	*mana*		*mɔna*	*mɔna*
70. mountain ..	*ome'nakara*	*mojo*	*muɭo*	*kamnkulj*	*gobu*	*kul moŋwa*	*hul mauŋgwa*
71. mouth ..	*apa-na*	*gia-na*	*dira-na*	*ŋgilava-no*	*gia-no*	*ŋgila-ne*	*gira-na*
72. name ..	*kuri-a*	*ka-nam*	*kaŋgi-na*	*ka-na*	*jagoi*	*ka-ne*	*ha-na*

English	Gende	Tjuave	Kuman	Sinasina	Sua	Dom	Boumai
73. needle ..	*vokam*	*kai*	*kare*	*kai*		*kai*	*hai*
74. night ..	*noŋgwa imbari*	*ginaŋguru*	*endeweri*	*sunambage*		*erueri*	*gəruŋwa*
75. pig	*poi*	*boima*	*boʟa*	*bo:na*	*no:n*	*bo:la*	*boruma*
76. sweet potato..	*ogwai*	*wa*	*ogwai, ka(ija)*	*kwa*	*kwa*	*kwi:va*	*heeba*
77. rain	*kotsi*		*kamen suŋgwa*	*nim suŋwa*	*nimi*	*au*	*eruain*
78. rat	*mitsi*	*dua*	*dua*	*dua*		*dua*	*dua*
79. red	*goro*	*gaigu*	*goʟ*	*golj*		*ba*	*ba*
80. road	*'kanua*	*ko:n*	*kon(um)bo*	*mile*	*komori*	*kolmbiḻ*	*holmbiḻ*
81. root	*arua*	*'maburum*	*duʟo*	*digi*	*ona*	*aul*	*eruain*
82. rope	*nara*	*ka:n*	*ka:n*	*ka:n*		*ka:n*	*ha:n*
83. I say	*eri*		*ndi-ŋga*	*ndi-ga*		*ndi-ga*	*ndi-a*
84. I see	*kwa*	*kaniga*	*kaniŋga*	*kaniga*		*karibun*	*hanubin*
85. sister ..	*nidjawo*		*'ambara*	*'abəla*		*'arisim*	*'aricim*
86. I sit ..	*tobuju*	*amendiga*	*amendiŋga*	*aməɔoŋwa*		*amendiga*	*amendiga*
87. skin	*tarawa*	*ga-no*	*naŋgie*	*ga-no*			
88. small ..	*keŋgua*	*gan*	*kembere, uru*	*keviḻ*		*kebiḻ*	*hebiḻ*
89. smoke.. ..	*'ikuwe*	*deri nare*	*ende inge*	*nuga*	*ed nugu*	*eri no*	*eri no*
90. snake	*tomoi*	*onopa*	*togoi*	*towi*		*garigiri*	*garigiri*
91. I stand ..	*orowiju*	*ariga*	*andixka*	*agiluŋwa*		*'aluŋwa*	*'aruŋwa*
92. star	*mbei, jorori*	*kobu*	*ku:ʟ*	*kuwiḻ*	*mogomi*	*kul moŋwa*	*hul moŋwa*
93. stone ..	*owo*		*kombuʟo*	*'koviḻe*	*koŋgo*	*kobule*	*hobure*
94. sugarcane ..	*avi*	*mbo*	*bo*	*bo*		*bo*	*bo*
95. sun	*po*	*are*	*ande*	*are*	*aro*	*are*	*are*
96. taro	*mai*	*me*	*me*	*me*	*me*	*me*	*me*
97. tears	*wenja nogai*	*oŋguminja niosiŋga*	*ongumuʟo nuʟo*	*omune nile*		*omul nile*	*omul nire*
98. tobacco ..	*utu*		*usi*	*usi*		*to:*	*ʃuane*

English	Gende	Tjuave	Kuman	Sinasina	Sua	Dom	Boumai
99. tongue ..	*navune*	*kinam*	*di'rambena*	*gilavuna*	*giau-no*	*giva:bune*	*giva:bune*
100. tooth ..	*wanadja*	*eri*	*tsiygi-na*	*sigina*	*ki-no*	*tjigi-na*	*tjigi-rain*
101. tree ..	*idja*		*ende*	*ere*	*eri*	*eri*	*eri*
102. village ..	*oguru*		*kamun*	*kamin*	*igi'nam*	*kamun*	*kamun*
103. water ..	*nogoi*	*ni*	*niL*	*nivil*	*nuwi*	*nil*	*nil*
104. wife ..	*kaunu-ne*	*ebinjambie*	*embena*	*eviem*		*nebena*	*nebena*
105. wind ..	*'gomurai*	*goi*	*iri*	*gwi*		*gwi*	*gwi*
106. woman ..	*anambia*	*opai*	*ambu*	*avaL*		*avaL*	*avaL*
107. yam ..	*kambai, pine*	*kom*	*kom*	*kwom*	*kom*	*kom*	*kon*

to a common original, where such exists. Though the connections eastward are not numerous, some are to be found even in this short list. So, for example, the words given for " come ! " compare well with those in the Garoka Valley list. The verb to eat, and the first person pronoun, are common property. The words for " water " seem to go back to one root. With the amount of material available it is impossible to state categorically any questions of relationship, and possible only to suggest them. The words above for " tree " agree with the root *dza* of the Garoka group, and in this instance even go back to Agárabi. Again, unfortunately, no comparison towards the south is possible owing to lack of information.

The vocabularies in these two sections will be arranged alphabetically instead of by subject, because a very different series of words was used as a basis. The interpreting was largely through either Kuman or Kâte, and this has influenced the material chosen. Sua, however, was taken at Garoka, and followed the grouping of vocabularies used there. Hence many of the terms included in the western vocabularies were not obtained in Sua, and the specimen does not do justice to the language, although it does show its Chimbu affiliations.

The languages are arranged from north to south and roughly from east to west. This places Gende first, and it is probably good that it should be so placed, by reason of its apparently preserving longer and older forms than Kuman and the languages more closely related to it.

It has already been shown that there is a considerable element in common between the Chimbu and the Wahgi-Hagen languages, and this appeared also in the grammatical analyses. Its extent will appear further in the following vocabularies, if they are compared with those of the Chimbu region. These vocabularies are arranged in the same manner as those of the Chimbu languages. They are alphabetical, proceeding from north to south and east to west, and they cover the same ground with the same numberings. For the actual language of Mt. Hagen district the name Mogei has been accepted as a convenient label in spite of its being very limited in its proper application.

For the sake of comparisons certain phonemic[8] equivalents should be noted. A final *-t* may be heard as *tr*, *dr*, *tj*, *dj*, without any change of meaning in the word. As a rule, *-tj* has been written in the first three of the following vocabularies, and *t* in the second three—Tsaga stands apart. The velarized lateral plosive ʟ has been written normally, but in Aua and Gawil sometimes *gl* or even *glm*, until more detailed study of these Hagen dialects can be made. The lateral plosive ʟ may interchange with this as between the Wahgi and Hagen dialects. Both ɮ and ʟ seem to be phonemic variants of a single sound, and to have sprung from *ri*. Compare Wagamb *meŋgari*, Mogei *meŋaʟ*, Aua *meŋgaʟ*, Gawil *maŋal*, bamboo. This is really the same sound as that written *gl* in Kuman, and it has been pointed out that Kuman ɮ corresponds to Gende *ri*. It occurs initially only in one Aua and Gawil example

[8] A phoneme is a significant unit of sound arrived at for a particular language by analysis which determines what shades of sound are critical for meaning.

English	Kuno	Nangamb	Wagamb	Mogei	Aua	Gawil	Tsaga	Tjirungki
1. above ..	*mini*	*minje*	*minte*	*oʟa*	*mugl*		*uru*	
2. angry ..	*ende kumburum*	*poboḷ tjive*	*pobuʟ sipam*	*popuʟ tement*	*mundiḷ terem*	*mimɔndiḷ tenem*	*pia:wa*	*imbu kalo*
3. ant ..	*kambi*	*kauwun*	*kaur*	*ip*	*ip*	*ip*	*te*	*te*
4. arrow ..	*moŋo*	*obo moŋom*	*oṗ moŋgo*	*eʟ moŋ*	*mera*	*eʟ moŋku*	*telja*	*tela*
5. ashes ..	*tsiver*	*dobu tjevolt*	*tevelt*	*djip kik*	*djip e*	*djeb gik*	*jaŋga*	*jaŋga*
6. back (n.)	*mogunu*	*bult*	*mogum*	*buruŋ*	*ombuʟ*	*buʟ*	*maira*	*maira*
7. bad ..	*kes*	*kes*	*kedj*	*kitj*	*girume*	*kiruwe*	*ko:*	*ko:*
8. bamboo ..	*meŋari*	*meŋar*	*meŋgari*	*meŋaʟ*	*meŋgaʟ*	*maŋaʟ*	*ke:ma*	*ke:ma*
9. banana ..	*ka:mp*	*ka:mp*	*tau*	*rɔa*	*kauijo*	*(pa) taua*	*tjai*	*tjia, aŋgar*
10. bird ..	*ka*	*ka*	*kai*	*kai*	*kera*	*kera*	*jaɣa*	*jaɣa*
11. black ..	*ŋa:nimp*	*ŋanimp*	*ka:ma*	*pómbara*	*pombarám*	*pombarám*	*pupurapa*	*pumpurapa*
12. blood ..	*meja*	*majam*	*maia*	*mem*	*jogoi*	*mem*	*tajox*	*tajox*
13. body ..	*ŋants*	*ŋantj*	*ŋgande*	*kɔn ómbeʟi*	*umbogigu*	*kaŋgum*	*janu*	*ja:nŭ*
14. bone ..	*ombur*	*ombur-um*	*ombura*	*ómbeʟi*	*ombeʟ*	*ombeʟim*	*kuri*	*kuri*
15. bow ..	*op*	*obo*	*op*	*eʟ*	*eʟ*	*eḷ*	*jandr*	*jandr*
16. bowstring	*op eruan*	*kir ka:n*	*op jirudn*	*eʟ gan*	*eʟ ga*	*eḷ gabagla*	*jandranbu*	*jandrembu*
17. bowels ..	*ents*	*endje-m*	*endje*	*kidjim*	*ogḷ*	*naŋgogl*	*iŋgi*	*jiŋgi*
18. breast ..	*am*	*am*	*am*	*aim*	*ami*	*ami*	*andrɣ*	*andr*
19. brother ..	*ɗŋina*	*aŋa*	*aŋgina*	*aŋini*	*aŋgu*	*aŋgini*	*kaimininŋgi*	*kaimininŋgi*
20. I burn ..	*dob ŋgara*	*dobu ŋgara*	*dobu ŋgara*	*dip nunt*	*tibe norum*	*tebi nogum*	*jaŋgeljo*	*jaŋgelo*
21. butterfly	*kum kaip*	*pidju*	*kuim kaime*	*goguma*	*gogumi*	*gogumi*	*kambiljo*	*kambilo*
22. cassowary	*ka raima*	*ka raima*	*kai raimp*	*raima*	*geragḷ raime*	*geragḷ aima*	*jaɣa raima*	*jaja raimu*
23. a chief ..	*arambu wom*	*je karma*	*aramb ué*	*wo nuim*	*jibebɔnam*	*ju nomim*	*aɣari andakį*	*ajari andaki*
24. child ..	*ŋar kere*	*nalt kembidj*	*jeme*	*nana, kan*	*bagl bane*	*gaŋga nanan*	*wana ŋaŋa*	*wana ŋaŋa*

English	Kuno	Nangamb	Wagamb	Mogei	Aua	Gawil	Tsaga	Tjirungki
25. cold ..	*biŋg ontj*	*biiŋgor*	*goiiri mpaim*	*ait enim*	*aidj erum*	*aiḷ kongoru*	*kupa*	*kupa*
26. I cry ..	*wi tontj*	*wi tona*	*vi rontj*	*wi runt*	*wio*	*wi tobum*	*wilja*	*kera*
27. day ..	*kunents*	*taŋima*	*kunande*	*reŋuma*	*taŋgori*	*taŋiljum*	*koraka*	*koraka*
28. dog ..	*tu*	*tu*	*tu*	*oua*	*oua*	*oua*	*jana*	*jana*
29. I drink	*nol nont*	*noḷ nove*	*noru nondu*	*nu nont*	*no ndu*	*no gorum*	*ive neljo*	*endagi nelo*
30. ear ..	*komolt*	*komolt*	*komur*	*kum*	*kom*	*kumu*	*ka:re*	*ka:re*
31. I eat ..	*nont*	*nove*	*nondu*	*nont*	*ndu*	*gorum*	*neljo*	*nelo*
32. egg ..	*muru*	*murom*	*muru*	*muʟ*	*moʟ*	*muʟ*	*jaja rokᵘ*	*jaja rokᵘ*
33. evening ..	*andj bem*	*natj manji ponom*	*guru pum*	*antj mand ponum*	*ena purum*	*kolja nabugum*	*nig pam-blejam*	*randa-biljam*
34. eye ..	*tuŋur*	*duŋolt*	*doŋgor*	*moŋ*	*moŋgo*	*moŋum*	*reŋgi*	*reŋgi*
35. face ..		*numpndalt*		*gwimpa keda*	*kumbe gere*	*gunbi geri*	*niŋgi ljap*	*niŋgi ljap*
36. father ..	*da:p*	*da:p*	*da:p*	*ti'pam, wota*	*ara*	*tara*	*taɣaŋk*	*taɣaŋk*
37. I fear ..	*ŋandil ŋont*	*kidaḷ gor*	*kilaḷ gondu*	*mondrmon ent*	*magu moŋku*	*mondrmon ongu tjent*	*pax*	*pax*
38. fire ..	*do:p*	*dobᵘ*	*dobᵘ*	*tjip*	*tipi*	*tjebe*	*jira:re*	*ira*
39. fish ..	*burum bar*	*buᵣ*	*buru*	*o:ma*	*o:ma*	*omd*	*wabaɣa*	*wabaɣa*
40. flesh ..	*mintj*	*mintje*	*mintᵢ*	*mintj*	*mintj*	*mintj*	*mintj*	*mintju*
41. flower ..	*war kuo*	*tavelt*	*war kwije*	*kundjip*	*kóndibe*	*kundjip*	*tanu*	*tanu*
42. a fly ..	*djebin*	*wurma*	*uma*	*oʟma*	*gomoi*	*gomoi*	*boŋgen*	*buŋgena*
43. food ..	*mogun*	*moŋɔna*	*mogun*	*reŋ*	*noromoʟ*	*nogur*	*namane*	*namane*
44. foot ..	*tjimp*	*tjimp*	*tjimp*	*tjimp*	*gi:imbo*	*gji:mpum*	*moɣureŋk*	*moɣureŋk*
45. fowl ..	*konduar*	*ka kurgura*	*ka kurkur*	*kai golda*	*kera kora*	*kera kuldra*	*(jaɣa)*	*(jaja)*
46. fruit ..	*ende moŋo*	*ondr moŋom*	*op moŋgo*	*de moŋ*	*ondj moŋk*	*undji moŋgum*	*ira ndi*	*ira ndi*
47. girl ..	*ambar kere*	*ambrŋar*	*ambeᵣ*	*ámboʟa*	*ambu*	*amboʟa*	*wana-kuɣore*	*wana-kuɣore*

English	Kuno	Nangamb	Wagamb	Mogei	Aua	Gawil	Tsaga	Tjirungki
48. I give him	*na ŋontj*	*na eljim ŋove*	*na ŋandu*	*na eljim ŋunt*	*na tjiro*	*na nu tjigir*	*maeljo*	*maelo*
49. I give you	*na nim ŋontj*	*na njim ŋove*	*na ŋgondu*	*na nim ŋunt*	*na nu tjiro*	*nu tjigir kaljem*	*diljo*	*dilo*
50. good ..	*ka*	*ka*	*kai*	*kai*		*kai*	*epe*	*epe*
51. great ..	*wom*	*toŋal*	*ûruma*	*ou*	*awiḷ*	*auḷ*	*jale*	*jaɽe*
52. hair (head)	*peŋ elna*	*peŋ indjin*	*peŋ endjin*	*peŋ indji*	*piŋ entji*	*peŋ indi*	*iri*	*iri*
53. hand ..	*aŋer*	*aŋelt*	*aŋgeɽ*	*ki*	*ki*	*ki*	*giŋk*	*giŋk*
54. head ..	*peŋ*	*peŋ*	*peŋ*	*peŋ*	*pentj*	*peŋ*	*aijumba*	*aijumba*
55. I hear ..	*komor pitj*	*pitj*	*pitj*	*pintj*	*pentj*	*pintju*	*tjiljo*	*tilo*
56. house ..	*ŋgar*	*gar*	*gar*	*mana*	*ŋgu*	*gur*	*anda*	*andɽa*
57. hungry	*konje tom*	*konj tonum*	*konj gondu*	*kund ronum*	*koro torom*	*goru dogum*	*robubjum*	*robubjum*
58. husband	*anda*	*andam*	*wini*	*wamb*		*jem*	*ɗɣariŋk*	*aɣariŋk*
59. knife ..	*ndjek*	*dje maima*	*dej*	*koja*	*koja*	*koja*	*ke:ma, lar*	*ra:ɽ*
60. I know	*na pitj*	*na pitj*	*na pitj*	*na pintj*	*na pil djo*	*na pili mol*	*ɣandeljo*	*ɣandrelo*
61. land, earth	*mar*	*malt*	*mar*	*møi*	*mai*	*mai*	*ju*	*ju*
62. leaf ..	*ondo wor*	*o:nda urum*	*aur*	*ŋoman*	*ŋgom*	*ŋgom*	*ire oxu̱*	*ire oku̱*
63. I lie down	*na pantj*	*na wuru pantj*	*na pantj*	*na uru pintj*	*oro pero*	*uru pentj*	*pareljo*	*parelo*
64. I live ..	*na (kolj) montj*	*na kor mont*	*na kor mont*	*na kontj morum*	*na kontji purum*	*wiangiljim*	*saɣadjilo*	*iaɣarelo*
65. long ..	*or*	*erke*	*or*	*ruʟ*	*tugḷ*	*sugḷ*	*ronde*	*rondre*
66. louse ..	*numan*	*tult*	*numan*	*nema*	*ɔmbónu*	*kjema*	*rema*	*rema*
67. man ..	*aramp*	*aramp, je*	*arambu̱*	*wø, wamb*	*ije, inboma*	*djie, ijampu*	*aɣari*	*aɣari*
68. moon ..	*oḷ*	*oḷ*	*oḷ*	*ka'ljimp*	*oʟ*	*kalimp*	*kana*	*kana*
69. mother	*mam*	*mam*	*mam*	*mam*	*ama*	*anu-m*	*endeiŋk*	*endreiŋk*

English	Kuno	Nangamb	Wagamb	Mogei	Aua	wawil	Tsaga	Tjirungki
70. mountain	*kimp*	*ma:r*	*muro*	*komɔŋa*	*ka:gumuga*	*koba gumuga*	*ju manda*	*ju mawandr*
71. mouth ..	*ŋgup*	*numini*	*da:r*	*keda*	*kerega*	*keri gubuʟa*	*neŋga kaire*	*neŋga ɣarini*
72. name ..	*kaŋina*	*kaŋim*	*kaŋgina*	*bi*	*biʟa*	*bi*	*keŋga*	*kjeŋga*
73. needle ..	*kwijon*	*ga:l̩*	*ka:l̩*	*gaʟ*	*waʟ*	*gaʟ*	*jana*	*jana*
74. night ..	*tamane*	*emil pam*	*taman*	*rumbuʟ*	*ibil tem*	*tjumbuʟ*	*ju gwiljamp*	*ju gwilamp*
75. pig ..	*ko*	*koŋ*	*koŋ*	*kuŋ, kŋ*	*kunj*	*kunj*	*mena*	*mena*
76. sweet potato	*kep*	*a'ga*	*kep*	*oga*	*gaig*	*gaig*	*aina*	*aina*
77. rain ..	*'komborom*	*kompr tonum*	*kombu ronom*	*kona ronum*	*kombuna torom*	*kola togum*	*ai'ju, kore*	*'keare*
78. rat ..	*koi*	*koi*	*koi*	*kŋi*	*ʟoi*	*ʟui*	*kunai*	*jeŋki*
79. red ..	*baŋ*	*baŋ*	*go:nŋ*	*gundr*	*obuʟ*	*nega*	*ka'rebiabai*	*karepe:pa*
80. road ..	*waziŋa*	*widjiŋam*	*koru wedjina*	*nombuʟa*	*adendu buʟe*	*gubu ʟanina*	*kai'rin*	*karini*
81. root ..	*dumbur*	*mem*	*dumbu'ro*	*ai*	*gara*	*bu*	*ire reŋk*	*ire treŋk*
82. rope ..	*ka:n*	*ka:n*	*ka:n*	*ga:n*	*a:pij*	*ka doɣon*	*kendr*	*kendre*
83. I say ..	*na ju njntj*	*na ju njive*	*na ju jundi*	*na njintj*	*na niju*	*na njint*	*reljo*	*relo*
84. I see ..	*na kantj*	*na kantj*	*na kantj*	*na kantj*	*na karo*	*na gane gorum*	*kandeljo*	*kandelo*
85. sister ..	*ambul-na*	*amba-na*	*ambr-na*	*aija*	*a:lja*	*a:ja*	*pimareŋk*	*pimareŋk*
86. I sit ..	*amen njintj*	*aminj mont*	*aminjmont*	*mana munt*	*manj mollu*	*manjo mogum*	*piljo*	*pilo*
87. skin ..	*ŋantj*	*ŋantj*	*ŋantj*	*køŋ*	*kaguʟ*	*ganjim*	*janu*	*janu*
88. small ..	*kere*	*kembis*	*kembis*	*keʟ*	*ke:ʟ*	*ke:ʟ*	*kukŋ*	*jeɣane*
89. smoke ..	*dop edjil*	*dob edjil*	*dob edjil*	*dop egiʟ*	*ljterum*	*djegum*	*irare kina*	*jira kina*

English	Kuno	Nangamb	Wagamb	Mogei	Aua	Gawil	Tsaga	Tjirungki
90. snake ..	*keru*	*kambukeru*	*keru*	*wumbia*	*wainbi*	*djina:bua*	*kanubara*	*kanubara*
91. I stand	*agiḷ*	*aŋilja*	*ageda*	*oʟa munt*	*gai mundi djanum*	*gai mindu djamun*	*troja kareljo*	*ɣarelo*
92. star ..	*kuḷ*	*kandjip*	*kugul kandjip*	*mibiʟ*	*kandije*	*mibiʟ*	*bui*	*bui*
93. stone ..	*ku*	*ku*	*ku*	*ku*	*kou*	*ku*	*kana*	*kana*
94. sugarcane	*omp*	*omp*	*omp*	*po*	*po:*	*po:m*	*lja*	*lja*
95. sun ..	*antj*	*antj*	*antj*	*antj*	*pani*	*e'ra*	*nik*	*nira*
96. taro ..	*mi*	*mi*	*mi*	*me*	*me*	*me*	*ribanu*	*ribanu*
97. tears ..	*tuŋur noro tom*	*ŋga erebe*	*doŋor noro ront*	*moŋo te*	*moŋgo te*	*moŋgum tje*	*e*	*e ibaŋk*
98. tobacco	*jir*	*jir*	*jit*	*toʟ*	*togo*	*togum*	*muri*	*muri*
99. tongue ..	*armber*	*armbelt*	*arəmbeḷ*	*anumbiʟ*	*arimbiʟ*	*animbiʟ*	*ke:k*	*ke:k*
100. tooth ..	*ŋgub moŋo*	*gub moŋom*	*gub moŋo*	*ŋgu*	*øŋgu*	*ŋgu*	*neŋk*	*neŋk*
101. tree ..	*ont*	*ont*	*ont*	*de*	*indje*	*ondju*	*ira*	*ira*
102. village ..	*kora*	*koru*	*koru*	*kona*	*kombu*	*koljam*	*ju*	*ju*
103. water ..	*noru*	*nol*	*nor*	*no*	*nol*	*noʟ*	*ive*	*endagi*
104. wife ..	*embi-na*	*ambie-m*	*ambi-na*	*amp-om*	*ámbo-ma*	*amb-om*	*enda*	*enda*
105. wind ..	*jir*	*pob*	*biri*	*kəbuʟə*	*adjerum*	*aldjigum*	*po:*	*po:*
106. woman	*amp*	*amp*	*amp*	*amp*	*ambu*	*amp*	*enda*	*enda:*
107. yam ..	*op*	*op*	*komp*	*op*	*mindji*	*mindje*	*amu*	*konda*

144°
143°
6°30'
6°
MANDATED TERRITORY OF NEW GUINEA
PAPUA
PAPUA
Hagen
dialects
Ogelbeg
mt. Hagen
Wabag
Ive Ambum
Tsbya
dialects
Gawil
Aua
KUGEL R.
mt. Giluwe
Samberigi
dialects
Ive Waga
Hoiyevia
Hoiyevia
dialects
Tari
Tari furoro
dialects
AUGU
LKUBUBU
Kutubu
dialects
N
W
E

(No. 78) in this list, and seems to be very rare in that position. Words requiring possessive suffixes have usually been written with such suffixes hyphenated. The vocabularies of the Wahgi-Hagen region follow. An addition is that of Tjirungki, some twenty miles west of Wabag.

Wider Connections of the Languages

It seems likely that this group of languages, as here studied, is limited to the Wabag region and eastwards; at any rate, there is change in many fundamental respects. Two specimens only from western areas are available, taken by the author. They represent the languages of Hoiyevia, to the south-west of the Wabag area, and Telafomin, farther west towards the Dutch border. The locations are shown on Map II. The Hoiyevia language is akin in structure to Tarifuroro, Kutubu and those of the Grasslanders and Samberigi Valley in Papua, where Sau will be used as an example. Telafomin is different again and its kinship is unknown. Brief specimens of vocabulary first and then of grammatical forms will show the lines of demarcation of these groups with regard to the languages east of Tsaga.[9]

Occasional verbal agreements will be found, e.g. Hagen *koŋ*, *kŋ*, pig, and Telafomin *koŋ*, but these are very rare, and are missing entirely from the vocabularies collected by Mr. J. Taylor west of Wabag. The following brief list of words will show the resemblances and differences between these languages and those previously studied.

Some notes on these vocabularies are needed. Several new symbols are used in them, showing a change in phonetic structures of the languages. The symbol *q* is the voiceless uvular plosive, farther back in the mouth than *k*. Nasal vowels, represented by the tilde (˜) over the vowel, are found in the Samberigi dialects and the Kutubu-Fasu region. Augu lacks them, but Williams wrote *ch* and *sh* in that language for which *tʃ* and *ʃ* are here used. As the writer has not heard this language spoken, he prefers to leave Williams' spelling, using only the corresponding phonetic symbols. In Kutubu even nasal diphthongs are heard, exemplified in the last two words of the list.

To the south of Kutubu, the Fasu language seems to be quite different; cf. man, K. *amena*, F. *aboro*; woman, K. *qa*, F. *hinamu*; father, K. *apa*, F. *ata*; bad, K. *keifori*, F. *kabuta*. Fasu does not link with any other language included in the present study. It is obvious that Telafomin stands completely apart from the Wabag group of languages, but the Hoiyevia-Tarifuroro-Augu-Samberigi series has distinct relationship to it, both in vocabulary and still more in morphology. This becomes apparent when the verbal systems are studied. The pronouns, however,

[9] Vocabularies taken by the author, except that in Tarifuroro one compiled by Mr. K. Atkinson as Assistant District Officer in the region has been used, and in Augu the vocabulary and grammar given by Mr. F. E. Williams in *The Grasslanders* (Annual Report of the Territory of Papua, 1938-1939) supply the sources. Williams' *Natives of Lake Kutubu* (*Oceania Monograph*, No. 6), p. 34, has supplied the Kutubu numerals. Confusion was introduced into the author's Kutubu material by the fact that the only informant available in Port Moresby was half Kutubu and half Fasu, and gave which ever language he thought of first, and this was discovered only towards the end of the study.

do not link with the Hagen-Wabag group at all. They are as follow: in the Telafomin two lists are given: forms in *-ta* are used before intransitive verbs and forms in *-mi* before transitive verbs, e.g. *nata movseri, alop ipta da'ɣinunu*, I stay, but you two go; *nami tanim arop utamta*, I saw two men. The possessives are the *-mi* forms of the pronouns: *nami atum*, my father; *numi atum*, our father.

English	Hoiyevia	Tari-furoro	Augu	Kutubu	Sau	Telafomin
man ..	*ari*	*agari*	*ab*	*amena*	*hari*	*ta'nim*
woman ..	*wari*	*wari*	*ten*	*qa*	*wãde*	*unaŋk*
father ..	*apa*	*apa*	*a:b*	*apa*	*apa*	*atum*
mother ..	*andjia*	*andia*	*am, anji*	*hũa*	*ama*	*aripeŋ*
name ..	*mini*	*minila*	*bi*	*njano*	*bigi*	
sun ..	*ne*	*ni*	*nar*	*maiaja*	*nari*	*a'tan*
moon ..		*ege*	*edj*	*itau*	*ege*	*qai'jop*
star ..	*abe*	*japundi*	*manfinʃ*	*eremaka*	*hõbu*	*minjiŋok*
water ..	*iba*	*iva*	*ip*	*hẽ*	*igari*	*wok*
rain ..	*taru*	*diwi*	*tʃe*	*jao*		*weɸ*
head ..	*hauwan*	*hagwune*	*wendjuba*	*ũ*	*juridara*	*di'bob*
hair ..	*mandari, iri*	*iri*	*iri*	*ũ sa*	*irigi*	*di'bob kol*
eye ..	*de*	*de*	*el*	*hĩ*	*le:gi*	*di*
hand ..	*gihoudoni*			*ja*	*kigi*	*kol*
foot ..	*ke (hape)*	*ke*	*aŋa*	*koraiki*	*ã:ki*	*jandu*
blood ..	*'daroma*	*darama*	*ke'djep*	*ja:pi*	*fore*	*i'sak*
food ..	*na*			*nipu*	*ne:*	*oneta*
taro ..		*ma*	*ma*	*penapo*	*ma*	*iman*
pig ..	*noɣo*	*noɣo*	*tadj*	*nami*	*mene*	*koɣ*
good ..		*baieri*	*e've*	*wasi*	*heregi*	*taŋbor*
bad ..		*ko*	*ko*	*keifori*	*hoire*	*mafaq*
big ..		*anda*	*a'nda*	*fori*	*hiegi*	*na'farik*
little ..		*emene*	*kaŋk*	*mano*	*harisigi*	*qatip*
long ..		*tu*	*tʃor*	*tufaijo*	*hua*	*tamitum*
short ..			*hi*	*kanijake*		*dumak*
come ..	*ibi-*	*bi-*		*wia!*		*taralo!*
go ..	*por-*	*por-*	*mban, pu(k)!*	*puapu*		*unalo!*
see ..	*handa-*	*handa-*	*ubu:k*	*'iribu*	*hãdu*	*-tami-*
strike ..		*ba-*	*lu'ruk*	*hõĩ*	*muru-*	*-kat-*
cut ..	*pora-*	*pora-*	*ka'run*	*forãĩ*	*hãmpere-*	*-kut-*

TABLE OF PRONOUNS

		Hoiyevia	Tarifuroro	Augu	Kutubu	Sau	Telafomin
Sing.	1 ..	*i*	*i*	*ni*	*na, maka*	*ia*	*nata, nami*
	2 ..	*ī*	*ī*	*je*	*naka*	*neki*	*qapta, qapmi*
	3 ..	*ī*	*ī*	*ŋo*	*naka*	*neki*	*jaqta, jaqmi*
Dual	1 ..	*ida*	*ina kirare*	*ja*		*digi*	
	2 ..	*ribu*	*ribu kirare*			*ibirigi*	
	3 ..	*ribu*	*ribu kirare*			*ibirigi*	
Plural	1 ..	*ina*	*ina*	*na*	*isina, nakana*	*nigi*	*nuta, numi*
	2 ..	*ti, tji*	*ti*	*anji*	*naka*	*i:gi*	*ipta, ipmi*
	3 ..	*ti, tji*	*ti*	*mindi*	*naka*	*'ipona*	

The evidence points to a relationship between the languages comprised within the triangle of the Star Mountains, Victor Emmanuel Range and the D'Albertis Junction of the Fly River, but the available material does not fall within the scope of the present article.[10] At all events their affinities are not with the languages treated in this paper.

The Tsaga language, however, is different. Certain general structural relationships to the Hagen-Chimbu groups have been indicated. At the same time there is obvious kinship to the languages of the Hoiyevia-Samberigi group. This appears most plainly in the conjugation of the verb. In the following specimens, Sau was unfortunately not taken completely, and the Kutubu notes are omitted as unreliable. Tarifuroro, Augu and Hoiyevia show a clear structural relationship in the present tense of the verb " see " :

It is tempting to see the earliest stage in Tsaga, but present knowledge is insufficient to justify such a statement. The coincidence of the second and third person dual and plural holds except possibly in Tarifuroro and Augu. The vowel changes in the Augu verbs are frequent in Williams' lists, and represent a local development along the lines of Umlaut and Brechung. The general agreements, however, are obvious. The interesting feature is that whereas throughout the Central Highlands the second and third persons of the verb are alike in dual and plural, in this group the pronouns of the second and third person are alike in each number, including the singular, except in Augu. In collecting the Kutubu and Samberigi material, the author was at first sceptical of this, and left the lists as possibly in error, as pronouns are always difficult to elicit for a third person. However, subsequent observation of the neighbouring languages seem to confirm them and they are

[10] For a general sketch of these peoples, see Kienzle and Campbell, " Notes on the Natives of the Fly and Sepik Headwaters, New Guinea," *Oceania*, Vol. VIII, Pt. 4, pp. 463-481.

		Tsaga	Hoiyevia	Tarifuroro	Augu	Sau
Sing.	1 ..	*kandélo*	*henden*	*handaro*	*hondon*	*hādu*
	2 ..	*kanderen*	*hendarebe*	*handa*	*hendal*	*hādi*
	3 ..	*kandil'ám*	*hendedá*	*handatiba*	*handa*	*hādie*
Dual	1 ..	*kandiγambanu*	*handáriba*	*handariva*	*hendiop*	*hādove*
	2 ..	*kandiγambin*	*handarivi*	*handarivi*		
	3 ..	*jandiγambin*	*handarivi*	*handarivi*		
Plural	1 ..	*kandiγamana*	*handátima*	*handarima*	*hendiom*	*hādua*
	2 ..	*kandiγamin*	*handádimi*	*handarimi*	*handogop*	
	3 ..	*kandiγamin*	*handádimi*	*handaija*	*henden*	

accordingly left in the lists. Vocabularies taken by Mr. J. L. Taylor in his expedition to the Telafomin country in 1938[11] show that this type of pronoun is found also in Obena on the Ive Waga and is said to reach the country of the Wagafurari, though at this point the language still has a good deal in common with Tsaga. It is at least clear that Tsaga while radically a member of the Hoiyevia-Tarifuroro group, also serves as a link between that and the Hagen-Chimbu languages.

A. CAPELL.

[11] Carbon copies were kindly given by Mr. Taylor to the author some years ago, and his own observation of Mr. Taylor's accuracy in the Tsaga list has emboldened him to use the Obena vocabularies also.

SUBSCRIPTION TO *OCEANIA*

Oceania was established in 1930. It was printed in Melbourne and the annual subscription for the four quarterly numbers was £1 10s. During 1933, however, arrangements were made to print the Journal in Sydney and distribute it from there. It was also decided to reduce the price to £1 per annum. This was made possible by the Australian National Research Council meeting part of the cost from its anthropological research funds, for the chief purpose was the publication of the results obtained by its research workers. This backing was especially necessary during the war, when so many overseas subscriptions were no longer available.

During this period, too, when paper shortage became acute, the size of each number was reduced on the average from 120 to 90 pages, as from Volume XI, No. 2, December 1940. In order, however, to provide subscribers with the same amount of material as previously and to keep abreast with the material being made available, the type was reduced from 12 to 10 point.

Fortunately, the authorities enabled us to obtain good quality paper, and we were not driven to the use of newsprint. I would like to express my appreciation of the help given me in this matter by Mr. J. Tivey, Chairman of the Research Council at the time.

After the war, our financial position gradually improved. Former subscribers returned. New ones appeared, and many whole sets were purchased. As a result, in 1947 and 1948 *Oceania* paid its way in spite of some increase in cost.

From the beginning of this year, however, as a result of the rise in the basic wage, and in wages generally, and in the production effects of the 40-hour week which now operates in New South Wales, the cost of publishing such journals as *Oceania* suddenly increased about 90 per cent. In figures, this means that we have to find about £300 a year above present receipts if *Oceania* is to continue. Unfortunately, the Research Council has neither anthropological research funds nor sufficient general funds to provide such a subsidy.

To my very great regret, therefore, I was constrained to recommend to the Executive of the Council that the subscription should return to the original figure of £1 10s. a year.

On behalf of the Australian National Research Council, I ask all subscribers, in spite of their own many increased costs, to maintain their subscriptions to *Oceania* if at all possible. This Journal has for nineteen years performed a most valuable function in the field of anthropological research. It goes to most countries, either through subscriptions or exchanges. Moreover, as research in the south-west Pacific and Australia must be, and will be, continued, such a medium as *Oceania* is as much required to-day as in the past. Moreover, I assure subscribers that as soon as receipts overtake costs, or a sufficient subsidy be available, the Council will consider the reduction of the subscription.

In the meantime, help in increasing the number of subscribers will be appreciated.

A. P. ELKIN,
Editor.

PROCEEDINGS OF THE SEVENTH PACIFIC SCIENCE CONGRESS NEW ZEALAND, 1949

The Organizing Committee proposed to publish the Proceedings of the Seventh Pacific Science Congress in single divisional or in appropriately grouped divisional volumes, and to offer single volumes as well as sets for sale.

No decision can yet be made as to the grouping of these volumes, or of price, but something of the following order may eventuate:

Volume			
I	General Proceedings, Narrative, Representation, Attendance, Research Plan Report ..	150 pp. ..	7s. 6d.
II	Geology, Geophysics and Volcanology ..	600 pp. ..	28s. 6d.
III	Meteorology and Oceanography	400 pp. ..	20s.
IV	Zoology	550 pp. ..	26s.
V	Botany, and Soil Resources, Agriculture and Forestry	550 pp. ..	26s.
	or V Botany	250 pp. ..	11s. 6d.
	VI Soil Resources, etc.	300 pp. ..	14s. 6d.
VI (or VII)	Anthropology: Public Health, and Nutrition - Social Sciences	550 pp. ..	26s.

It will be realized that the larger the initial order for printing, the lower the cost of individual volumes will be; early registration with Secretary-General, Box 27, Newmarket, Auckland, S.E.1, will therefore ensure a copy being available and contribute to lowering the cost.

It is hoped to complete the printing by March 1950.

The above grouping and size of volumes are at the planning stage only, and the prices mentioned are, at best, tentative. The prices are in New Zealand currency.

REVIEWS

Character and Structure of the Action in Maori. By J. Prytz Johansen. *Det. Kgl. Danske Videnskabets Selskab, Historisk-Filologiske Meedelelser.* Bind XXXI, Nr. 5, pp. 1-65. Copenhagen, 1948.

This very thorough examination of the subject matter propounded in the title is a test case as to whether a language can be made to interpret itself entirely, without recourse to comparison with other languages or even with itself at an earlier stage. In spite of the extreme care and rich documentation supplied by the author, the conclusion must be that it cannot do so in an altogether satisfactory way. In one place (p. 52) the author practically admits this, in dealing with the gerund ending *-nga*, "in the Maori known."

His first thesis is the nature of grammatical categories in Maori, and starting from the concept of "full words" and definitives and particles he seeks to know whether "nouns" and "verbs" are to be distinguished. He feels that they do not, and produces evidence suggesting that his conception may be correct. There is certainly nothing distinctive either in form or position as between noun and verb;

everything depends on the definitives and particles with which words are accompanied. Consequently he feels that " the study of the prepositions in itself is of great importance for the understanding of Maori, also apart from the wider perspective revealed by this study " (p. 19). He also establishes that definitives are of two sorts, nominal and verbal, and shows that certain of the " prepositions " have—to express it as neutrally as possible—a bias towards certain connotations of tense. *Hei* looks towards the future, and all its special uses are based upon that fact; *kei* is concerned with the present position of an object, and *i* comes to regard chiefly the past. The verbal bias of some prepositions could have been more fully illustrated had the author permitted himself to look outside the Maori language. This is true, for instance, of *na*, which is not only distinctly verbal in force, but may actually be a verb form, representing the initial consonant often prefixed in Indonesian languages (usually as *ng-* to make a verb definitely such, and to make other parts of speech into verbs, as in Javanese *aku*, I; but *ngaku*, " to say 'I' of it." So, for instance in the Polynesian languages of Reef Islands, Pileni, *niana te tai*, is-his the sea; in Futuna of the New Hebrides this *ni* is a verbal prefix of tense. Many of the specific and seemingly peculiar uses of the prepositions are intelligible if this bias towards time connotations is accepted. Here the author has done a good work.

He is not so happy about the objective signs *i* and *ki*. Here again, much discussion could have been saved by a comparison with the original sources of Maori. In Indonesian (the nearest group of languages to those original Austronesian sources) *-i* is a common transitive ending: Malay uses it very frequently. On this basis a case could be made out for writing it as part of the verb in Maori! *Ki* on the other hand goes back to **akən*, a sign of the indirect object, and, as a suffix, a means of making a transitive out of an intransitive verb. The use of *i* and *ki* in Maori corresponds roughly to the difference between **-i* and **akən* in Orig. Austr. The discussions really make more obvious the need for an Original Austronesian Grammar, parallel to the vocabulary as restored by Dempwolff. At some point or other self-interpretation of a language is bound to give out, just because each language already has a long history, and in many cases not all worked out in one place—as in the Maori example.

The value of introducing the concept of " concretive sentence " seems doubtful. Everything that is necessary can be gained by retaining the title " gerund " for words ending in *-nga*, such as *hokinga*, if it is conceded that the word-base itself is neither verb nor noun by nature. This gerund is frequently used in a type of " absolute " construction, as in the English nominative absolute, or in the Latin ablative absolute. This means, of course, that it must also function as a gerundive, in order to take on a passive force. If the ending produces a gerund-gerundive, then it follows (p. 54) that it is neither active nor passive—it is both, or either according to need. The concluding section, in which reference is made to Lévy-Bruhl's theory of participation, would have been better omitted, seeing that that theory is no longer widely held.

Many individual points could be queried if space permitted, especially that on p. 20, in which the author says that *o* is neutral, and not passive, as is commonly stated; similarly his contention that the article *te* is neutral as regards number. This seems fairly obviously incorrect, and still more so when comparison is made with other Polynesian languages. His suggestion that the idea of " aspect " needs to be introduced into the study of the Maori verb is very important (p. 37, etc.). H. W. Williams, *First Lessons in Maori*, §45, implies this, but does not arrive at stating it. The author has given a very stimulating study, which deserves to be followed up, both in Maori and in other Polynesian languages—but not to the

exclusion of comparative study. His *hei* in its two uses as definitive and preposition, for instance, almost certainly answers to two different original words.

There is quite a number of misprints, e.g. p. 25, *tangate* for *tangata*; p. 28, " simiverbal " for " semiverbal "; several times on p. 33 *rongi* for *rongo*; on pp. 54 and 55, *batata* is not English (" potato ").

A. CAPELL.

Tell the White Man. By H. E. Thonemann. Collins, Sydney, 1949. Pp. 1-190, with plates.

The author gives an historical and geographical account of the Elsey station, near Mataranka in the Northern Territory. To unify his material and provide it with dramatic emphasis, he presents it through the medium of an aboriginal woman who was born and brought up at the station. To do this, however, a number of factual details and personal names have evidently been added (Chapter 1) to supplement the woman's own story. For example, the second Chapter, " My First Walkabout," is remarkably detailed for unaided recollections of the woman herself, since she was at that period " under three " (footnote, p. 30).

Some readers may feel that the style has, for the most part, been oversimplified, giving the impression that the natives, in using their own dialects or " pidgin " English, show a corresponding lack of complexity. On the other hand the author, unlike so many employers of natives, has taken the trouble to record the aboriginal as well as the European names of the natives whom he discusses, and this is to his credit.

A few points are worthy of mention. The author after referring (p. 26) to the murder of Duncan Campbell, which took place in 1882 (one of the natives concerned being shot while resisting arrest in 1885), added (p. 27) that " after this excitement, and the reprisals that followed, our tribe settled down into an easy acceptance of the white man." But data in the Adelaide archives (e.g. *Incoming and Outgoing Correspondence of the Northern Territory Administration*, then under South Australian control) gives evidence of unrest at Elsey station for some years. For instance, in 1887 and 1888 the attorney for the station (Geo. Warland) wrote urgently demanding police action against the natives for their continual cattle killing on that property, and threatening that if nothing official were done the local white men would take the law into their own hands and shoot the natives.

Chapters 4 and 5 contain interesting material about tribal organization and customs. There is also some discussion of aboriginal belief and ritual; but throughout the book (e.g. pp. 43, 61) Kunapipi is referred to as " he," although in the area concerned she is a female being. Perhaps the error arose through the use of " pidgin " English, which does not distinguish between the masculine and feminine forms of the pronoun. In this context the author (p. 62) describes the belief of the " Mungari " tribe in a " wicked witch "!

In the reviewer's opinion the Glossary (pp. 181-187) serves no useful purpose, for apart from the publisher's blurb, the book does not claim to be an anthropological treatise, and must not be judged as such. Incidentally, *bada*, p. 119, should be father, not his brother's son (*wawa*).

Tell the White Man is a valuable contribution to Australian literature. It is unprecedented that a Northern Territory pastoralist should so far consider the aborigines' point of view as to make it the *main* theme of a book ,and not just treat them as subsidiary characters. For the most part, too, the attitudes expressed are tolerant and thoughtful.

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The author has, of course, a commercial interest in the Elsey property and in the services of the natives. Thus, p. 127: " the Boss . . . said he hoped we would all have a lot more babies. ' Make 'm big mob stockboys,' he said." He also refers to the war-time friction between pastoralists and the Army, in their competition for aboriginal labour (e.g. p. 142). The Army native settlements set a new standard in regard to the material welfare of the natives, and this was resented in some quarters. The facilities the settlement offered, although modest enough by ordinary Australian-European standards, were yet considered revolutionary and impracticable in so far as the aborigines were concerned: regular and appetising cooked meals, showers, sanitation, medical attention, canteen facilities and pay. The majority of aborigines who passed through the settlements appreciated these to the full, and particularly the more " human " and friendly treatment that accompanied them.

Tell the White Man is of much interest to the student of the culture contact situation in Australia. The author's station policy of " child endowment," accompanied by some degree of non-interference in ritual life, is to be commended as an almost unique attempt (in the Territory at least) to check the rapid decline that for so many tribes has been the inevitable accompaniment of pastoral activity. Mr. Thonemann has thus, in his pastoral capacity, made some practical attempt to help the aborigines in their adjustment to Australian-European life; and the fact that he is willing to co-operate with anthropologists is a promising sign. It is to be hoped that others will follow his example, before the aborigines disappear entirely from the neighbourhood of the pastoral stations—as in some quarters they show signs of doing before many years have elapsed.

C. H. BERNDT.

The Japanese Journal of Ethnology (*Minzokugaku Kenkyu*), Vol. 13, No. 1, and No. 3, are to hand. No. 1 contains " Relations between the Japanese Language and the Southern Languages " (Nobuhiro Matsumoto), " The Relationship between Japanese and the Luchuan, Korean and Altaic Languages " (Shirō Hattori), " Language and Culture, the Linguistic Impediment to Cross-Cultural Communication " (Yoshiharu Scotty Matsumoto), " Ecology of Orochons in the Great Khingan Mountains (2) " (Kinji Imanshi Yutaka Ban) as the chief articles. English summaries of each are given. No. 3 is given mostly to the report of a round-table discussion on the " Origin of the Japanese People and Culture and Formation of the Japanese State," which reaches opposite conclusions, in its relevant sections, to the opening article in the same number, " Evolution of Man and the Japanese Manifestation " (Kotondo Hasebe). The addition of English summaries, which were often not present in the pre-war *Journal of the Anthropological Society of Tōkyō*, adds value to these journals, which we are pleased to see in publication.

A. CAPELL.

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VOLUME XIX. No. 4 JUNE 1949

CONTENTS

THE PREHISTORIC CULTURES OF AUSTRALIA. *By Frederick D. McCarthy* .. ..*page* 305

THE INDUSTRIAL ARTS IN TANGA. *By F. L. S. Bell* .. .. „ 320

DISTRIBUTION OF LANGUAGES IN THE CENTRAL HIGHLANDS, NEW GUINEA. *By A. Capell* .. .. „ 349

SUBSCRIPTION TO *OCEANIA* .. .. „ 378

PROCEEDINGS OF THE SEVENTH PACIFIC SCIENCE CONGRESS, NEW ZEALAND, 1949 .. .. „ 379

REVIEWS—

J. Prytz Johansen. *Character and Structure of the Action in Maori* .. „ 379

H. E. Thonemann. *Tell the White Man* .. .. „ 381

The Japanese Journal of Ethnology (Minzokugaku Kenkyu) .. .. „ 382

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